	11.0	
Interleukin(IL) 3	IL3	l
Interleukin(IL) 3 receptor	IL3R	- 1
Interleukin(IL) 4	IL4	1
Interleukin(IL) 4 receptor	IL4R	ı
Interleukin(IL) 5	ĮL5	- 1
Interleukin(IL) 5 receptor	IL5R	1
Interleukin(IL) 6	IL6	1
Interleukin(IL) 6 receptor	IL6R	-
Interleukin(IL) 7	IL7	l
Interleukin(IL) 7 receptor	IL7R	1
Interleukin(IL) 8	IL8	1
Interleukin(IL) 8 receptor	IL8R	1
Interleukin(IL) 9	IL9	i
Interleukin(IL) 9 receptor	IL9R	i
Interleukin(IL) receptor antagonist 1	IL1RN, IL1RA	i
Kallikrein 3	KAK3	i
Kinectin	KTN1	Ġ
	KNSL1	G
Kinesin, heavy chain	KNS2	G
Kinesin, light chain	KNG	
Kininogen, High molecular weight	LEP	
Leptin		G
Leptin receptor	LEPR	G
Leukotriene A4 hydrolase		1
Leukotriene B4 receptor		
Leukotriene C4 receptor		I
Leukotriene D4/E4 receptor		1
2	LHCGR	G
LIM homeobox transcription factor 1, beta	LMX1B	G
Lipoprotein lipase	LPL	1
Lipoprotein receptor, Low Density	LDLR	Τ
Lipoxygenase 12 (platelets)	LOG12	ı
Lipoxygenase 5 (leukocytes)		- 1
Low density lipoprotein receptor-related protein	LRP	T
precursor		
Lysosomal acid lipase	LIPA	E
Malonyl CoA decarboxylase		Ε
Malonyi CoA transferase		Ε
Maltase-glucoamylase		Ε
Mannose binding protein	MBP	1
Mannosyl (alpha-1,6-)-glycoprotein beta-1, 2-	MGAT2	Т
N-acetylglucosaminyltransferase		•
MAPK kinase 1	MAPKK1; MEK1	G
MAPK kinase 4	MAPKK4; MEK4;	Ğ
IVIATA MITASE 4	SERK1	•
MADK kings 6	MAPKK6; MEK6	G
MAPK kinase 6	MAPKKK	G
MAPKK kinase		G
Matrix Gla protein	MGP	E
MEK kinase, MEKK		_

Melanocortin 2 receptor Melanocortin 4 receptor Methionine adenosyltransferase Methionine synthase Methionine synthase reductase Methylguanine-DNA methyltransferase Mevalonate kinase MHC Class I: Tap1 MHC Class II: Tap2	MC2R MC4R MAT1A, MAT2A MTR MTRR MGMT MVK ABCR, TAP1 TAP2, PSF2	TTEEEEI
Microphthalmia-associated transcription factor Mismatch repair gene, PMSL1	MITF PMS1	G G
Mismatch repair gene, PMSL2	PMS2	G
Mitochondrial trifunctional protein, alpha subunit	HADHA	E
Mitochondrial trifunctional protein, beta subunit	HADHB	Ε
Mitogen-activated protein (MAP) kinase	MAPK	G
Monoamine oxidase A	MAOA	E
Monoamine oxidase B	MAOB	Ε
Multidrug resistance associated protein	MRP	G
Muscarinic receptor, M1	CHRM1	Ν
Muscarinic receptor, M2	CHRM2	Ν
Muscarinic receptor, M3	CHRM3	Ν
Muscarinic receptor, M4	CHRM4	Ν
Muscarinic receptor, M5	CHRM5	Ν
Na+, K+ ATPase, alpha	ATP1A1	G
Na+, K+ ATPase, beta 1	ATP1B1	G
Na+, K+ ATPase, beta 2	ATP1B2	G
Na+, K+ ATPase, beta 3	ATP1B3	G
Na+/H+ exchanger 1	NHE1	Τ
Na+/H+ exchanger 2	NHE2	Τ
Na+/H+ exchanger 3	NHE3	Τ
Na+/H+ exchanger 4	NHE4	Т
Na+/H+ exchanger 5	NHE5	T
N-acetylgalactosamine-6-sulfate sulfatase	GALNS	Ε
N-acetylglucosamine-6-sulfatase	GNS	Ε
N-acetylglucosaminidase, alpha	NAGLU	Ε
N-acetyltransferase 1	NAT1	E
N-acetyltransferase 2	NAT2	
N-acyl hydrolase		1
NADH dehydrogenase (ubiquinone)	NDUFV1	Ε
flavoprotein 1		_
NADH-cytochrome b5 reductase	DIA1	E
NADPH-dependent cytochrome P450	POR	Ε
reductase	NIDLU O	_
Nephrolithiasis 2	NPHL2	T
Nephronophthisis 2	NPHP2	T
Nephrosis 1	NPHS1	T
Neuroendocrine convertase 1	NEC1, PCSK1	Ε

Neurokinin A Neurokinin B Neuropeptide Y Neuropeptide Y receptor Y1 Neuropeptide Y receptor Y2 Niacin receptor Niemann-Pick disease protein Nuclear factor kappa beta Nuclear factor of activated T cells (NFAT)	NKNA NKNB NPY NPY1R NPY2R NPC1 NFKB NFATC	ZZZZZGT-G
complex, cytosolic Nuclear factor of activated T cells (NFAT)	NFATP	G
complex, preexisting component Nucleoside diphosphate kinase-A Oncogene spi1	NDPKA	E G
Opioid receptor, delta Opioid receptor, kappa Opioid receptor, mu Ornithine transcarbamoylase Osteoprotegerin Otoferlin Oxytocin Oxytocin receptor Paired-like homeodomain transcription factor 2 Paired-like homeodomain transcription factor 3 Paraoxonase PON1 Paraoxonase PON2 Paraoxonase PON3 Parathyroid hormone Parathyroid hormone receptor Parathyroid hormone related-peptide Parathyroid hormone-like hormone Parvalbumin PCNA (proliferating cell nuclear antigen) Peanut-like 1 Peroxisomal membrane protein 1 Peroxisome biogenesis factor 1 Peroxisome biogenesis factor 6 Peroxisome biogenesis factor 7	PITX3 PON1 PON2 PTH PTHR1 PTHrP PTHLH PVALB PNUTL1 PXMP1 PEX1 PEX19 PEX6 PEX7	N N N E G N N N G G E E E E G G G G E - S T T T T
Peroxisome proliferative activated receptor, alpha	PPARA	T _
Peroxisome proliferative activated receptor, gamma	PPARG	T
P-glycoprotein 1 P-glycoprotein 3 Phenylethanolamine N-methyltransferase, PNMT	PGY3 PNMT	T T E
Phosphodiesterase 1 / nucleotide	PDNP1	G

pyrophosphatase 1		
Phosphodiesterase 1 / nucleotide	PDNP2	G
pyrophosphatase 2		
Phosphodiesterase 1 / nucleotide	PDNP3	G
pyrophosphatase 3		
Phospholipase A2, group 10	PLA2G10	1
Phospholipase A2, group 1B	PLA2G1B	1
Phospholipase A2, group 2A	PLA2G2A	1
Phospholipase A2, group 2B	PLA2G2B	-1
Phospholipase A2, group 4A	PLA2G4A	1
Phospholipase A2, group 4C	PLA2G4C	1
Phospholipase A2, group 5	PLA2G5	ı
Phospholipase A2, group 6	PLA2G6	1
Phospholipase C alpha		1
Phospholipase C beta		1
Phospholipase C delta	PLCD1	I
Phospholipase C epsilon		1
Phospholipase C gamma	PLCG1	1
Phosphomannomutase-2	PMM2	T
Phosphomannose isomerase-1, PMI1	MPI	T
Phosphoribosyl pyrophosphate synthetase	PRPS1	E
Pituitary adenylate cyclase activating peptide	PACAP	Ν
Pituitary adenylate cyclase activating peptide	PACAP1R	Ν
receptor		
Plasminogen activator, Tissue	PLAT; TPA	Ε
Platelet-activating factor receptor	PAFR	1
Plectin 1	PLEC1	T
Polycystin 1	PKD1	T
Polycystin 2	PKD2	T
Porphobilinogen deaminase	HMBS	Ε
Potassium channel, calcium-activated,	KCNN4	Ν
Potassium channel, subfamily K, member 1	KCNK1	Ν
Potassium channel, subfamily K, member 2	KCNK2	N
Potassium channel, subfamily K, member 3	KCNK3	Ν
Potassium inwardly-rectifying channel J1	KCNJ1	Ν
Potassium inwardly-rectifying channel J11	KCNJ11	N
Potassium voltage-gated channel A1	KCNA1	Ν
Potassium voltage-gated channel E1	KCNE1	Ν
Potassium voltage-gated channel Q1	KCNQ1	Ν
Potassium voltage-gated channel Q2	KCNQ2	Ν
Potassium voltage-gated channel Q3	KCNQ3	Ν
POU domain, class 1, transcription factor 1	POU1F1	G
(Pit1)		
POU domain, class 3, transcription factor 4	POU3F4	G
POU domain, class 3, transcription factor 3	POU4F3	Ğ
Pre-B-cell leukemia transcription factor 1	PBX1	Ğ
Preproglucagon	GCG;GLP1; GLP2	Ğ
Progesterone receptor (RU486 binding	PGR	G
. Frogesterone receptor (170400 billioning	, 511	•

receptor)		
Prolactin	PRL	G
Prolactin receptor	PRLR	G
Proopiomelanocortin	POMC	N
Prostacyclin synthase		ï
Prostaglandin 15-OH dehydrogenase	HGPD; PGDH	i
Prostaglandin D - DP receptor		ì
Prostaglandin E1 receptor		i
Prostaglandin E2 receptor		i
Prostaglandin E3 receptor		i
Prostaglandin F - FP receptor		i
Prostaglandin F2 alpha receptor		i
Prostaglandin IP receptor		i
Prostaglandin-endoperoxidase synthase 2	PTGS2	G
Protease nexin 2	PN2	Ē
Protein C	PROC	ī
Protein kinase DNA-activated	PRKDC	Ė
Protein S	PROS1	1
Pterin-4-alpha-carbinolamine	PCBD	·
Purine nucleoside phosphorylase	NP	Ε
Purinergic receptor P1A1	•	N
Purinergic receptor P1A2		Ν
Purinergic receptor P1A3		N
Purinergic receptor P2X, 1	P2RX1	Ν
Purinergic receptor P2X, 2	P2RX2	Ν
Purinergic receptor P2X, 3	P2RX3	Ν
Purinergic receptor P2X, 4	·P2RX4	Ν
Purinergic receptor P2X, 5	P2RX5	Ν
Purinergic receptor P2X, 6	P2RX6	N
Purinergic receptor P2X, 7	P2RX7	Ν
Purinergic receptor P2Y, 1	P2RY1	Ν
Purinergic receptor P2Y, 11	P2RY11	N
Purinergic receptor P2Y, 2	P2RY2	Ν
RAD51, DNA repair protein	RAD51	G
RAD52, DNA repair protein	RAD52	G
RAD54, DNA repair protein	RAD54	G
RAD55, DNA repair protein	RAD55	G
RAD57, DNA repair protein	RAD57	G
Recombination activating gene 1	RAG1	G
Recombination activating gene 2	RAG2	G
Red cone pigment	RCP	S
Replication factor A		E
Replication factor C	RFC2	E
Retinaldehyde binding protein 1	RLBP1	T
Retinoic acid receptor, alpha	RARA	G
Retinoic acid receptor, beta	RARB	G
Retinoic acid receptor, gamma	RARG	G
Retinoid X receptor, alpha	RXRA	G

Retinoid X receptor, beta	RXRB	G
Retinoid X receptor, gamma	RXRG	G
Retinol binding protein 1		T
Retinol binding protein 2		Ť
Retinol binding protein 4	RBP4	Ť
Ribonucleotide reductase, RRM	1.51	Ė
Ribosephosphate pyrophosphokinase		E
Ribosomal protein L13A	RPL13A	G
Ribosomal protein S19	RPS19	E
Ribosomal protein S4, X-linked	RPS4X	
Ribosomal protein S6 kinase	RPS6KA3	E
·	RPS9	G
Ribosomal protein S9 S-adenosylmethionine decarboxylase, AMD	KF39	
Secretin	SCT	E
	SCTR	Ť
Secretin receptor, SCTR	SHMT	
Serine hydroxymethyltransferase		E
Serotonin N-acetyltransferase	SNAT	
Serotonin receptor, 5HT1A	HTR1A	N
Serotonin receptor, 5HT1B	HTR1B	Ν
Serotonin receptor, 5HT1C	HTR1C	N
Serotonin receptor, 5HT1D	HTR1D	N
Serotonin receptor, 5HT1E	HTR1E	N
Serotonin receptor, 5HT1F	HTR1F	N
Serotonin receptor, 5HT2A	HTR2A	Ν
Serotonin receptor, 5HT2B	HTR2B	N
Serotonin receptor, 5HT2C	HTR2C	N
	·HTR3	N
Serotonin receptor, 5HT4	HTR4	N
Serotonin receptor, 5HT5	HTR5	N
Serotonin receptor, 5HT6	HTR6	N
Serotonin receptor, 5HT7	HTR7	И
Slug protein	ONDON	G
Small nuclear ribonucleoprotein polypeptide N		S
Sodium channel, non-voltage gated 1, alpha	SCNN1A	N
Sodium channel, non-voltage gated 1, beta	SCNN1B	N
Sodium channel, non-voltage gated 1, gamma		N
Sodium channel, voltage gated, type IV, alpha	SCN4A	Ν
polypeptide	00154	
Sodium channel, voltage gated, type V, alpha	SCN5A	Ν
polypeptide		
Sodium channel, voltage-gated, type 1, beta	SCN1B	Ν
polypeptide		_
Solute carrier family 1 (amino acid transporter),	, SLC1A6	T
member 6		_
Solute carrier family 1 (glial high affinity	SLC1A3	T
glutamate transporter), member 3		
Solute carrier family 1 (glutamate transporter),	SLC1A1	Т
member 1		

Solute carrier family 1 (glutamate transporter), member 2	SLC1A2	Т
Solute carrier family 1 (neutral amino acid transporter), member 4	SLC1A4	Т
Solute carrier family 10 (sodium/bile acid cotransporter family),member 1	SLC10A1	Т
Solute carrier family 10 (sodium/bile acid cotransporter family),member 2	SLC10A2	Т
Solute carrier family 12, member 1	SLC12A1	Т
Solute carrier family 12, member 2	SLC12A2	Т
Solute carrier family 12, member 3	SLC12A3	Т
Solute carrier family 14, member 2	SLC14A2	Т
Solute carrier family 15 (H+/peptide	SLC15A1	Т
transporter, intestinal), member 1		
Solute carrier family 15 (H+/peptide	SLC15A2	Т
transporter, kidney), member 2		·
Solute carrier family 16 (monocarboxylate	SLC16A1	Т
transporter), member 1		
Solute carrier family 16 (monocarboxylate	SLC16A7	Т
transporter), member 7		
Solute carrier family 17, member 1	SLC17A1	Т
Solute carrier family 17, member 2	SLC17A2	Т
Solute carrier family 18, member 3	SLC18A3	Т
Solute carrier family 19 (folate transporter),	SLC19A1	Т
member 1		
Solute carrier family 2 (facilitated glucose	SLC2A1	T
transporter), member 1		
Solute carrier family 2 (facilitated glucose	SLC2A2	T
transporter), member 2		
Solute carrier family 2 (facilitated glucose	SLC2A3	T
transporter), member 3		
Solute carrier family 2 (facilitated glucose	SLC2A4	T
transporter), member 4	-	
Solute carrier family 2 (facilitated glucose	SLC2A5	Τ
transporter), member 5		
Solute carrier family 20, member 1	SLC20A1	T
Solute carrier family 20, member 2	SLC20A2	T
Solute carrier family 20, member 3	SLC20A3	T
Solute carrier family 21, member 2	SLC21A2	T
Solute carrier family 21, member 3	SLC21A3	T
Solute carrier family 22, member 1	SLC22A1	T
Solute carrier family 22, member 2	SLC22A2	T
Solute carrier family 22, member 5	SLC22A5	Т
Solute carrier family 25, member 12	SLC25A12	T
Solute carrier family 3 (facilitated glucose	SLC3A1	Т
transporter), member 1		
Solute carrier family 4 (anion exchanger), member 1	SLC4A1	Т

Solute carrier family 4 (anion exchanger), member 2	SLC4A2	Т
Solute carrier family 4 (anion exchanger),	SLC4A3	Т
member 3 Solute carrier family 5 (sodium/glucose	SLC5A1	Т
transporter), member 1 Solute carrier family 5 (sodium/glucose	SLC5A2	Т
transporter), member 2 Solute carrier family 5 (sodium/glucose	SLC5A5	Т
transporter), member 5 Solute carrier family 5, member 3	SLC5A3	Т
Solute carrier family 6 (GAMMA-	SLC6A1	Ť
AMINOBUTYRIC ACID transporter), member 1 Solute carrier family 6 (neurotransmitter	SLC6A3	Т
transporter, dopamine), member 3 Solute carrier family 6 (neurotransmitter	SLC6A2	Т
transporter, noradrenaline), member 2 Solute carrier family 6 (neurotransmitter	SLC6A4	Т
transporter, serotonin), member 4 Solute carrier family 6, member 10	SLC6A10	Т
	SLC6A6	Ť
Solute carrier family 6, member 6		
Solute carrier family 6, member 8	SLC6A8	T
Solute carrier family 7(amino acid transporter), member 1	SLC7A1	Τ
Solute carrier family 7(amino acid transporter), member 2	SLC7A2	Т
Solute carrier family 7(amino acid transporter), member 7	SLC7A7	Т
Solute carrier family 8 (sodium/calcium exchanger), member 1	SLC8A1	Т
Somatostatin	SST	Ν
	SSTR1	
Somatostatin receptor, SSTR1		N
Somatostatin receptor, SSTR2	SSTR2	G
Somatostatin receptor, SSTR3	SSTR3	Ν
Somatostatin receptor, SSTR4	SSTR4	Ν
Somatostatin receptor, SSTR5	SSTR5	Ν
Sorcin	SRI	T
SOS1 guanine nucleotide exchange factor	SOS1	G
Steroid 5 alpha reductase 1	SRD5A1	Ē
Steroid 5 alpha reductase 2	SRD5A2	E
•	SINDOAZ	G
Steroid hormone receptor responsive DNA elements		G
Sterol carrier protein 2	SCP2	T
Succinic semi-aldehyde dehydrogenase	ssadh	Ε
Sucrase		Ε
Sulfonylurea receptor	SUR	G
Synaptic vesicle amine transporter	SVAT	N
Tachykinin receptor, NK1R	TACR1	N
rachykimi receptor, ivit iit	IAUNI	1.4

Tachykinin receptor, NK2R Tachykinin receptor, NK3R Terminal deoxynucleotidyltransferase Thiopurine S-methyltransferase Thrombopoietin Thromboxane A synthase 1 Thromboxane A2 Thromboxane A2 receptor Thymidylate synthase Thymopoietin	TACR2 TACR3 TDT TPMT THPO TBXAS1 TXA2 TBXA2R TYMS TMPO	ZZ - HG HG
Thyroid hormone receptor, beta Thyroid-stimulating hormone receptor Thyroid-stimulating hormone, alpha Thyroid-stimulating hormone, beta Topoisomerase I Topoisomerase II	THRB TSHR TSHA TSHB	GGGGHH
Transcription factor 1, hepatic Transcription factor 2, hepatic Transcription factor 3 Transcription factor binding to IGHM enhancer 3	TCF1 TCF2 TCF3 TFE3	GGGG
Transcription factor, TUPLE1 Transcription termination factor, RNA polymerase 1	TUPLE1 TTF1	N G
Transcription termination factor, RNA polymerase 2	TTF2	G
Transcription termination factor, RNA polymerase 3	TTF3	G
Transferrin	TF	G
Transferrin receptor	TFRC	G
Transthyretin Tubulin	TTR	T S
Tumour necrosis factor (TNF) receptor associated factor 1	TRAF1	1
Tumour necrosis factor (TNF) receptor associated factor 2	TRAF2	ı
Tumour necrosis factor (TNF) receptor associated factor 3	TRAF3	1
Tumour necrosis factor (TNF) receptor associated factor 4	TRAF4	ı
Tumour necrosis factor (TNF) receptor associated factor 5	TRAF5	l
Tumour necrosis factor (TNF) receptor associated factor 6	TRAF6	1
Tumour necrosis factor alpha	TNFA	1
Tumour necrosis factor alpha receptor	TNFAR	1
Tumour necrosis factor beta	TNFB	1
Tumour necrosis factor beta receptor	TNFBR	1

Tumour protein p53 Tumour protein p63	TP53, P53 TP63	G G
Tumour suppresssor gene DRA	DRA	1
Ubiquitin		G
Ubiquitin activating enzyme, E1		E
Ubiquitin B	UBB	G
Ubiquitin C	UBC	G
Ubiquitin carboxyl-terminal esterase L1	UCHL1	G
Ubiquitin protein ligase E3A	UBE3A	E
UDP-glucose pyrophosphorylase		E
UDP-glucuronosyltransferase 1	ugt1d, UGT1	E
UDP-glucuronosyltransferase 2	UGT2	E
Uncoupling protein 1		T
Uncoupling protein 3	UCP3	T
Uridine monophosphate kinase	UMPK	1
Uridine monophosphate synthetase	UMPS	1
Uridinediphosphate(UDP)-galactose-4-	GALE	E
epimerase	V // N A	
Vimentin	VIM	ا 6
Vitamin B12-binding (R) protein	VDD	G G
Vitamin D receptor	VDR XDH	E
Xanthine dehydrogenase	XPA	E
Xeroderma pigmentosum, complementation	APA	Ĺ.,
group A	XPB	Ε
Xeroderma pigmentosum, complementation	XI B	•
group B Xeroderma pigmentosum, complementation	·XPC	Ε
	XI O	_
group C Xeroderma pigmentosum, complementation		Е
group D	•	
Xeroderma pigmentosum, complementation		E
group E		
Xeroderma pigmentosum, complementation	XPF	Ε
group F		
Xeroderma pigmentosum, complementation	ERCC5	Ε
group G		
X-ray repair gene	XRCC9	G
Xylitol dehydrogenase		Ε
YY1 transcription factor	YY1	G
•		

2. A set of probes, said probes being antibodies or antibody fragments which interact with specific expressed proteins encoded by gene sequences of a group of genes, said probes being for detecting relevant variants (mutations and polymorphisms), e.g. nucleotide substitutions (missense, nonsense, splicing and regulatory), small deletions, small insertions, small insertion deletions, gross insertions, gross deletions, duplications, complex rearrangements and repeat variations in a target group of genes; characterised in that said group is a core group of genes consisting of substantially all of the genes defined in claim

1.

- 3. A set according to claim 1 or 2 in which a minority of said probes for listed genes are absent.
- 4. A set according to claim 1 or 2 in which a limited number of additional probes are present together with substantially all of the probes for the listed genes.
- 5. A set according to claim 1 or 2 in which a limited number of probes are replaced by probes for non-listed genes.
- 6. A set of probes for a core group of genes according to any of claims 1 to 5 in which each gene to be probed is substantially similar (greater than 85% homologous) in sequence to the respective member of the core list of genes.
- 7. A set according to any of claims 1 to 6 consisting of probes for members of a sub-group of the core group.
- 8. A set according to any preceding claim in which said probes are in the form of an array and are spatially arranged at known locations on a substrate.
- 9. A set according to any preceding claim wherein said probes are on a substrate which forms part of or consists of one or more chip plate(s), for use in a chip assay for detection of said gene variants.
- 10. A set according to any preceding claim in which said probes are mass, electrostatic or fluorescence tagged probes.
- 11. A set according to claim 8 or 9 in which said substrate is a semiconductor microchip.
- 12. A set according to any preceding claim for use in a biological assay for detection of said gene variants.
- 13. A set according to any preceding claim for use in the measurement of differential gene expression levels.
- 14. A medical device including a set according to any preceding claim for use in an assay for detection of said gene variants.
- 15. A medical device including a set according to any of claims 1 to 13 for use in an array for detection of differential gene expression levels.
- 16. A method for use in assessing the genomic profile of a patient or individual, the method comprising testing for and detecting the presence or absence of DNA or RNA encoding the relevant structural variants (as defined in claim 1) in a target group of genes by hybridising a nucleic acid-containing sample from said patient or individual to a set according to any of claims 1 and 3 to 13 and relating the probe hybridisation pattern to said variations.
- 17. A method for use in assessing the the genomic profile of a patient or individual, the method comprising testing for and detecting the presence or absence of DNA or RNA encoding the relevant structural variants (as defined in claim 2) in a target group of genes by interacting an expressed-protein-containing sample from said patient or individual with a set of probes according to any of claims 2 to 13 and relating the probe interaction pattern to said variations.
- 18. Use of a set or device according to any of claims 1 to 13 for the prognosis and management of patients suffering from or at risk of adverse events.

- 19. Use of a set or device according to any of claims 1 to 13 for predicting likely therapeutic response and adverse events following therapeutic intervention.
- 20. Use of a set or device according to any of claims 1 to 13 for predicting likely therapeutic response and adverse events following the intake of a specific drug.
- 20. Use of a set or device according to any of claims 1 to 13 for predicting likely patterns of symptom clusters (symptom profiles) in disease and the likelihood of subsequent, contingent, disease or symptoms.
- 21. Use of a set or device according to any of claims 1 to 13 for general health screening, occupational health purposes, healthcare planning on a population basis and other healthcare management utilisations.
- 22. Use of a set or device according to any of claims 1 to 13 for the development of new strategies of therapeutic intervention and in clinical trials.
- 23. Use of a set or device according to any of claims 1 to 13 for construction of and generation of algorithms for patient and healthcare management.
- 24. Use of a set or device according to any of claims 1 to 13 for modelling or assessing the impact of diseases or healthcare management strategies on individuals, groups, patient cohorts or populations
- 25. Use of a set or device according to any of claims 1 to 13 for modelling, assessing or exploring the theoretical impact of diseases and healthcare management strategies on individuals, groups, patient cohorts or populations.
- 26. Use of a set or device according to any of claims 1 to 13 for predicting optimum configuration/management of thereapeutic intervention.
- 27. A method according to claim 16 or 17 in which the identification of gene variants is indicative of a higher risk of experiencing adverse events for the patient or individual.
- 28. A method for generating a model to assess whether a patient or individual or population or group is or are likely to experience adverse events, which method comprises:
- i) obtaining DNA or RNA or protein samples from patients or individuals diagnosed as suffering from adverse events;
- ii) obtaining DNA or RNA or protein samples from a control group of subjects diagnosed as not suffering from the adverse events;
- iii) analysing the samples obtained in i) and ii) to identify the polymorphic variations encoded in the core group of genes as defined in any of claims 1 to 7;
- iv) calculating the frequencies of these alleles in the samples from i) and ii);
- v) comparing the frequencies of these alleles in i) and ii);
- vi) performing a statistical analysis on the results from v) in order to generate a model for assessing the risk of experiencing adverse events.
- 29. A method for assessing whether a given subject will be at risk of developing symptoms, which comprises comparing said subject's genotype with a model generated by the method of claim 28.
- 30. A method according to any of claims 16, 17, 28 and 29 wherein at least one step is computer-controlled.
- 31. An assay suitable for use in a method according to any of claims 16, 17, 28 and 29; said assay comprising means for determining the presence or absence of relevant polymorphic variants of the core group of genes as defined in any of claims 1 to 7 in a biological sample.

- 32. A formatted assay technique (kit) for use in assessing the risk of a patient or individual experiencing adverse events; said kit comprising:
 - i) means for testing for the presence or absence or DNA or RNA encoding relevant polymorphic variants of the core group of genes as defined in claim 1 or 3 to 7 in a sample of human DNA;
 - ii) reagents for use in the detection process
 - iii) readout indicating the probability of a patient or individual experiencing adverse events.
- 33. A formatted assay technique (kit) for use in assessing the risk of a patient or individual experiencing adverse events; said kit comprising:
 - i) means for testing for the presence or absence of proteins encoded by the core group of genes and/or relevant polymorphic variants of the core group of genes as defined in any of claims 2 to 7 in an expressed-protein-containing human sample;
 - ii) reagents for use in the detection process
 - iii) readout indicating the probability of a patient or individual experiencing adverse events.
- A set of probes according to claim 1, wherein the probes are selected from the group consisting of oligonucleotides and polynucleotides.
- A set of nucleotide probes for detecting relevant variants (mutations and polymorphisms), e.g. nucleotide substitutions (missense, nonsense, splicing and regulatory), small deletions, small insertions, small insertion deletions, gross insertions, gross deletions, duplications, complex rearrangements and repeat variations in a target group of genes which relate to cancer; said probes being complementary to DNA and RNA sequences of said group of genes; characterised in that said group is a core group of genes consisting of substantially all of the following:

KEY TO 'PROTEIN FUNCTION' COLUMN

- E ENZYME
- T TRANSPORT & STORAGE
- S STRUCTURAL
- I IMMUNITY
- N NERVOUS TRANSMISSION
- G GROWTH & DIFFERENTIATION

ONCOLOGY GENE LIST	HUGO gene symbol	Protein function
Absent in melanoma 1 gene	AIM1	G
Actin, alpha, cardiac	ACTC	S
Actin, alpha, skeletal	ACTA1	S
Actin, alpha, smooth, aortic	ACTA2	S
Activin		G
Activin A receptor, type 2B	ACVR2B	G
Activin A receptor, type 2-like kinase 1	ACVRL1	G
Adenomatous polyposis coli tumour supressor	APC	G

gene		
Adenosine deaminase	ADA	E
Adenosine receptor A1	ADORA1	N
Adenosine receptor A2A	ADORA2A	N
Adenosine receptor A2B	ADORA2B	N
Adenosine receptor A3	ADORA3	N
Adenyl cyclase	715011710	N -
Adenylate cyclase 1	ADCY1	E
Adenylate cyclase 2	ADCY2	E
Adenylate cyclase 3	ADCY3	E
Adenylate cyclase 3 Adenylate cyclase 4	ADCY4	E
•	ADCY5	
Adenylate cyclase 5	ADCY6	E
Adenylate cyclase 6	ADCY7	E
Adenylate cyclase 7	ADCY8	Ē
Adenylate cyclase 8		E
Adenylate cyclase 9	ADCY9	E
Adrenergic receptor, alpha1	ADRA1	N
Adrenergic receptor, alpha2	ADRA2	N
Adrenergic receptor, beta1	ADRB1	N
Adrenergic receptor, beta2	ADRB2	N
Adrenergic receptor, beta3	ADRB3	N
Adrenocorticotrophic hormone (ACTH)	ACTHR	G
receptor	A1 D	-
Albumin, ALB	ALB	T
Alcohol dehydrogenase 3	ADH3	E
Aldehyde dehydrogenase 1	ALDH1	E
Aldehyde dehydrogenase 10	ALDH10	E
Aldehyde dehydrogenase 2	ALDH2	E
Aldehyde dehydrogenase 5	ALDH5	E
Aldehyde dehydrogenase 6	ALDH6	E
Aldehyde dehydrogenase 7	ALDH7	E
Aldosterone receptor	MLR	G
alpha tectorin	TECTA	G
alpha1-antitrypsin	PI	E
alpha-actinin 2	ACTN2	G
alpha-actinin 3	ACTN3	G
Alpha-fetoprotein	AFP	G
alpha-synuclein	SNCA	N
Amphiregulin	AREG	G
Amyloid beta A4 precursor protein	APP	N
Amyloid beta A4 precursor-like protein	APLP	N
Androgen receptor	AR	G
Angiopoietin 1	ANGPT1	G
Angiopoietin 2	ANGPT2	G
Angiotensin converting enzyme	ACE, DCP1	E
Angiotensin receptor 1	AGTR1	T
Angiotensin receptor 2	AGTR2	T
Angiotensinogen	AGT	E

Annexin 1	ANX 1	ı
Antidiuretic hormone receptor	ADHR	Ť
Antithrombin III	AT3	Ė
AP-2, alpha	TFAP2A	G
AP-2, beta	TFAP2B	G
AP-2, gamma	TFAP2C	G
Apaf-1		S
Apoptosis antigen 1	APT1	ì
Apoptosis antigen ligand 1	APT1LG1	i
Apoptosis-inducing factor	AIF	i
Apurinic endonuclease	APE	Ė
Arginine vasopressin	AVP	N
Arginosuccinate synthetase	ASS	E
Aryl hydrocarbon receptor	AHR	T
Aryl hydrocarbon receptor nuclear translocator		Ť
Asparagine synthetase	AS	Ė
Aspartate receptor		N
Ataxia telangiectasia complementation group D	ATD, ATDC	G
Ataxia telangiectasia gene, AT	ATM	Ğ
ATP cobalamin adenoxyltransferase		E
ATP sulphurylase	atpsk2	E
ATP-binding cassette transporter 7	ABC7	Ī
Atrial natriuretic peptide	ANP	G
Atrial natriuretic peptide receptor A	NPR1	G
Atrial natriuretic peptide receptor B	NPR2	G
Atrial natriuretic peptide receptor C	NPR3	G
Atrophin 1	DRPLA	G
Bagpipe homeobox, drosophila homolog of, 1	BAPX1	G
B-cell CLL/lymphoma 1	BCL1	1
B-cell CLL/lymphoma 10	BCL10	1
B-cell CLL/lymphoma 3	BCL3	1
B-cell CLL/lymphoma 4	BCL4	1
B-cell CLL/lymphoma 5	BCL5	1
B-cell CLL/lymphoma 6	BCL6	1
B-cell CLL/lymphoma 7	BCL7	1
B-cell CLL/iymphoma 8	BCL8	1
B-cell CLL/lymphoma 9	BCL9	1
BCL2-associated X protein	BAX	G
BCL2-related protein A1	BCL2A1	G
Beckwith-Wiedemann region 1A	BWR1A	G
Benzodiazepine receptor		N
beta 2 microglobulin	B2M	1
beta-endorphin receptor		Ν
beta-synuclein	SNCB	Ν
Bleomycin hydrolase	BLMH	Ε
Bone morphogenetic protein, BMP1	BMP1	G
Bone morphogenetic protein, BMP2	BMP2	G
Bone morphogenetic protein, BMP3	BMP3	G

Bone morphogenetic protein, BMP4 Bone morphogenetic protein, BMP5 Bone morphogenetic protein, BMP6 Bone morphogenetic protein, BMP7 Bone morphogenetic protein, BMP8 Bradykinin receptor B1 Bradykinin receptor B2 Brain derived neurotrophic factor	BMP4 BMP5 BMP6 BMP7 BMP8	G G G G G G
Brain derived neurotrophic factor (BDNF) receptor	BDNFR	Ğ
Branched chain aminotransferase 1, cytosolic Branched chain aminotransferase 2, mitochondrial	BCAT1 BCAT2	E
BRCA1-associated RING domain gene 1	BARD1	G
Breakpoint cluster region	BCR	G
Breast cancer 1	BRCA1	G
Breast cancer 2	BRCA2	G
Breast cancer, ductal, 1	BRCD1	G
Breast cancer, ductal, 2	BRCD2	G
Bruton agammaglobulinaemia tyrosine kinase	BTK	G
C1 inhibitor		E
Cadherin E	CDH1	G
Cadherin EP	00110	G
Cadherin N	CDH2	G
Cadherin P	CDH3	G
Calbindin 1	CALB1	G
Calbindin D9K	CALB3	G
Calcitonin receptor /Calcitonin gene-related	CALCR	Ν
peptide receptor Calcitonin/Calcitonin gene-related peptide	CALCA	N
alpha	CALCA	14
Calcium channel, voltage-dependent, alpha 1F	CACNA1F	Ν
subunit		
Calcium channel, voltage-dependent, Alpha-	CACNA1B	Ν
1B (CACNL1A5)		•
Calcium channel, voltage-dependent, Alpha-	CACNA1C	Ν
1C		
Calcium channel, voltage-dependent, Alpha-	CACNA1D	Ν
_1D		
Calcium channel, voltage-dependent, Alpha-	CACNA1E	Ν
1E (CACNL1A6)	0400140	N.
Calcium channel, voltage-dependent, Alpha- 2/delta	CACNA2	N
Calcium channel, voltage-dependent, Beta 1	CACNB1	Ν
Calcium channel, voltage-dependent, Beta 3	CACNB3	N
Calcium channel, voltage-dependent, L type,	CACNA1S	N
alpha 1S subunit	2. 13. 11. 113	, ,
Calcium channel, voltage-dependent,	CACNG2	Ν
Danielli Gilailliot, Follago Gopolidoliti		• •

Neuronal, Gamma Calcium channel, voltage-dependent, P/Q	CACNA1A	N
type, alpha 1A subunit		• •
Calcium channel, voltage-dependent, T-type		Ν
Calmodulin 1	CALM1	G
Calmodulin 2	CALM2	G
Calmodulin 3	CALM3	G
Calmodulin-dependant protein kinase II	CAMK2A	G
Calnexin	CANX	G
Carbonic anhydrase 3	CA3	Ε
Carbonic anhydrase 4	CA4	Ε
Carbonic anhydrase, alpha	CA1	E
Carbonic anhydrase, beta	CA2	E
Cardiac-specific homeobox, CSX	CSX	G
Cartilage-hair hypoplasia gene	СНН	Ν
Caspase 1	CASP1	G
Caspase 10	CASP10	G
Caspase 2	CASP2	G
Caspase 3	CASP3	G
Caspase 4	CASP4	G
Caspase 5	CASP5	G
Caspase 6	CASP6	G
Caspase 7	CASP7	G
Caspase 8	CASP8	G
Caspase 9	CASP9	G
Catenin, beta	CTNNB1	G
	CD1	1
CD10	CD10	1
CD4	CD4	
CEA	ICAM1	G G
Cell adhesion molecule, intercellular, ICAM		G
Cell adhesion molecule, leukocyte-endothelial,	LLCAWT	G
LECAM (CD62) Cell adhesion molecule, liver, LCAM	LCAM	G
Cell adhesion molecule, neural, NCAM1	NCAM1	G
Cell adhesion molecule, neural, NCAM120	NCAM120	G
Cell adhesion molecule, neural, NCAM2	NCAM2	G
Cell adhesion molecule, platelet-endothelial,	PECAM1	Ğ
PECAM		
Cell adhesion molecule, vascular, VCAM	VCAM1	G
c-erbB1	ERBB1	G
c-erbB2	ERBB2	G
c-erbB3	ERBB3	G
c-erbB4	ERBB4	G
Ceruloplasmin precursor	CP	Ε
Chemokine receptor CXCR1	CXCR1	i
Chemokine receptor CXCR2	CXCR2	!
Cholecystokinin	CCK	Ν
•		

Cholecystokinin B receptor Ciliary neurotrophic factor (CNTF)	CCKBR CNTF CNTFR	N G
Ciliary neurotrophic factor (CNTF) receptor c-kit receptor tyrosine kinase	CNIFK	G G
Clathrin		T
Clusterin	CLU	Ġ
Collagen IV alpha 4	COL4A4	S
Collagen IV alpha 5	COL4A5	S
Collagen IV alpha 6	COL4A6	S
Colony-stimulating factor 1	CSF1	G
Colony-stimulating factor 1 receptor	CSF1R	G
Colony-stimulating factor 2	CSF2	G
Colony-stimulating factor 2 alpha receptor	CSF2RA	G
Colony-stimulating factor 2 beta receptor	CSF2RB	G
Colony-stimulating factor 3	CSF3	G
Colony-stimulating factor 3 receptor	CSF3R	G
Complement component C1 inhibitor	C1NH	1
Complement component C1qa	C1QA	1
Complement component C1qb	C1QB C1QG	1
Complement component C1qg	C1QG C1R	1
Complement component C1s	C1S	1
Complement component C2	C2	ı
Complement component C2 Complement component C3	C3	
Complement component C4A	C4A	į
Complement component C4B	C4B	i
Complement component C5	· C5	İ
Complement component C6	C6	I
Complement component C7	C7	1
Complement component C8	C8B	1
Complement component C9	C9	1
Complex III		E
Core-binding factor, alpha 1	CBFA1	G
Core-binding factor, alpha 2	CBFA2	G
Core-binding factor, beta	CBFB	G
Corticotrophin-releasing hormone	CRH	T
Corticotrophin-releasing hormone receptor	CRHR1	T
c-src tyrosine kinase	CSK	G
Cyclic AMP-dependent protein kinase	PKA	E G
Cyclin A	CCNA CCNB	G
Cyclin B	CCNC	G
Cyclin C	CCND1	G
Cyclin D	CCNE	G
Cyclin E Cyclin F	CCNF	G
Cyclin-dependent kinase 1	CDK1	G
Cyclin-dependent kinase 1	CDK10	Ğ
Cyclin-dependent kinase 2	CDK2	Ğ

CYP4B1 CYP4F2 CYP4F3 CYP51 CYP5A1 CYP7A CYP8 Cystathionase Cystathione beta synthase Cystic fibrosis transmembrane conductance regulator, CFTR	CYP4B1 CYP4F2 CYP4F3 CYP51 CYP5A1 CYP7A CYP8 CTH CBS CFTR	
Cytidine deaminase Cytidine-5-prime-triphosphate synthetase Cytochrome a Cytochrome c Cytochrome c oxidase, MTCO	CDA CTPS CSBP1	
Cytokine-suppressive antiinflammatory drugbinding protein 1	CSDF1	1
Cytokine-suppressive antiinflammatory drugbinding protein 2	CSBP2	ı
Defender against cell death 1 Deleted in colorectal carcinoma Deleted in malignant brain tumours 1 Deoxycytidine kinase DCK Deoxyuridine triphosphatase; dUTPase	DAD1 DCC DMBT1	GGGEE
Desert hedgehog, dhh	-01150	G
Dihydrofolate reductase Dihydrolipoyl dehydrogenase	⁻ DHFR	E
Dihyropyrimidine dehydrogenase DM-Kinase DNA damage binding protein, DDB1 DNA damage binding protein, DDB2 DNA directed polymerase, alpha DNA glycosylases DNA helicases	DPYD DMPK DDB1 DDB2 POLA	пшпоошшп
DNA Ligase 1 DNA methyltransferase DNA polymerase 1 DNA polymerase 2 DNA polymerase 3 DNA primase	LIG1 DNMT	шшшшш
DNA-damage-inducible transcript 3 DNA-dependant RNA polymerase DOPA decarboxylase Dopamine receptors D1 Dopamine receptors D2 Dopamine receptors D3	DDIT3 DDC DRD1 DRD2 DRD3	E S E E Z Z Z
Dopamine receptors D4	DRD4	Ν

Dopamine receptors D5 Dynamin	DRD5 DNM1	N G
Dynorphin receptor		N
Dysferlin	DYS, DYSF	Ε
Dyskerin	DKC1	S
EB1		G
Endoglin	ENG	S
Endothelin 1	EDN1	N
Endothelin 2	EDN2	N
Endothelin 3	EDN3	N
Endothelin converting enzyme	ECE1	N
Endothelin receptor type A	EDNRA EDNRB	N
Endothelin receptor type B	ENO1	N E
Enolase Ephrin receptor tyrosine kinase A	EPHA	G
Ephrin receptor tyrosine kinase A	EPHB	G
Epidermal growth factor	EGF	G
Epidermal growth factor receptor	EGFR	G
Estrogen receptor	ESR	G
Eukaryotic initiation translation factor	EIF4E	Ğ
EWS RNA-binding protein	EWSR1	G
Excision repair complementation group 1 protein	ERCC1	Ε
Excision repair complementation group 2	ERCC2	Ε
protein Excision repair complementation group 2	ERCC3	E
protein		_
Excision repair complementation group 4	ERCC4	Ε
protein	FDCCC	_
Excision repair complementation group 6	ERCC6	E
protein	EXT1	S
Exostosin 1	EXT2	S
Exostosin 2	LXIZ	E
FADH dehydrogenase Fanconi anemia, complementation group C	FANCC	T
Fanconi anemia, complementation group D	FANCD	Ť
Fc fragment of IgG, high affinity IA, receptor for		Ġ
Fc fragment of IgG, low affinity IIa, receptor for (CD32)		Ğ
Fc fragment of IgG, low affinity Illa, receptor for	r FCGR3A	G
(CD16)	FECH	Ε
Ferrochelatase	FECH FBN1	G
Fibrillin 1	FGF1	G
Fibroblast growth factor Fibroblast growth factor receptor 1	FGFR1	G
Fibroblast growth factor receptor 2	FGFR2	G
Fibroblast growth factor receptor 3	FGFR3	G
Fibronectin precursor	FN1	G

Folic acid receptor	FOLR	G
Follicle stimulating hormone receptor	FSHR, ODG1	G
Follicle stimulating hormone, FSH	FSHB	G
Follicular lymphoma variant translocation 1	FVT1	1
Forkhead rhabdomyosarcoma gene	FKHR	G
Forkhead transcription factor 14	FKHL14	G
Forkhead transcription factor 7	FKHL7	G
Fucosyltransferase 2	FUT2	Т
Fucosyltransferase 3	FUT3	Т
G/T mismatch binding protein	GTBP, MSH6	G
GABA receptor, alpha 1	GABRA1	N
GABA receptor, alpha 2	GABRA2	N
GABA receptor, alpha 3	GABRA3	N
GABA receptor, alpha 4	GABRA4	N
GABA receptor, alpha 5	GABRA5	N
GABA receptor, alpha 6	GABRA6	N
GABA receptor, beta 1	GABRB1	N
GABA receptor, beta 2	GABRB2	N
GABA receptor, beta 3	GABRB3	Ν
GABA receptor, gamma 1	GABRG1	N
GABA receptor, gamma 2	GABRG2	N
GABA receptor, gamma 3	GABRG3	N
Gadd45 (growth arrest & DNA-damage-induc	ible protein)	Ε
Galactosyltransferase 1	GT1	G
Galactosyltransferase, alpha 1,3	GGTA1	G
Galactosyltransferase, beta 3	B3GALT	G
Gastrin	-GAS	G
Gastrin releasing peptide	GRP	Т
Glioma chloride ion channel, GCC		G
Glucagon receptor	GCGR	G
Glucagon synthase		Т
Glucocorticoid receptor	GRL	G
Glutamate receptor 1	GLUR1	Ν
Glutamate receptor 2	GLUR2	N
Glutamate receptor 3	GLUR3	N
Glutamate receptor 4	GLUR4	N
Glutamate receptor 5	GLUR5	N
Glutamate receptor 6	GLUR6	N
Glutamate receptor 7	GLUR7	N
Glutamate receptor, ionotropic, NMDA 1	NMDAR1	N
Glutamate receptor, ionotropic, NMDA 2A	NMDAR2A	N
Glutamate receptor, ionotropic, NMDA 2B	NMDAR2B	N
Glutamate receptor, ionotropic, NMDA 2C	NMDAR2C	N
Glutamate receptor, ionotropic, NMDA 2D	NMDAR2D	N
Glutathione	GSH	Ţ
Glutathione S-transferase mu 1, GSTM1	GSTM1	E
Glutathione S-transferase theta 1, GSTT1	GSTT1	E
Glutathione S-transferase, GSTZ1	GSTZ1	Ε

Glyceraldehyde-3-phosphate dehydrogenase, GAPDH	GAPDH	E
Glycerol kinase	GK	Ε
Glycinamide ribonucleotide (GAR)	GART	Ē
transformylase		_
Glycine receptor, alpha	GLRA2	Ν
Glycine receptor, beta	021012	N
Glycine transporter	GLYT	N
Glypican 3	GPC3, SDYS	G
	GNRH	G
Gonadotropin releasing hormone	GNRHR	
Gonadotropin releasing hormone receptor		G
Growth factor receptor-bound protein 2	GRB2	G
Growth hormone 1	GH1	G
Growth hormone 2 (placental)	GH2	G
Growth hormone receptor	GHR	G
Growth hormone releasing hormone (GHRH)	GHRH	G
Growth hormone releasing hormone receptor	GHRHR	G
Growth/differentiation factor 5	GDF5	G
Growth-regulated protein precursor, GRO	GRO	I
GTPase-activating protein, GAP	RASA1	G
Guanine nucleotide-binding protein, alpha	GNAI1	N
inhibiting activity polypeptide 1, GNAI1	GNAI2	N
Guanine nucleotide-binding protein, alpha inhibiting activity polypeptide 2, GNAI2	GNAIZ	IV
Guanine nucleotide-binding protein, alpha	GNAI3	Ν
inhibiting activity polypeptide 3, GNAI3		
Guanine nucleotide-binding protein, alpha	GNAS1	Ν
stimulating activity polypeptide, GNAS1		
Guanine nucleotide-binding protein, alpha	GNAS2	Ν
stimulating activity polypeptide, GNAS2		
Guanine nucleotide-binding protein, alpha	GNAS3	Ν
stimulating activity polypeptide, GNAS3		
Guanine nucleotide-binding protein, alpha	GNAS4	Ν
stimulating activity polypeptide, GNAS4		
Guanine nucleotide-binding protein, q	GNAQ	Ν
polypeptide		
Guanylate kinase		Ε
H(+), K(+) - ATPase	ATP4B	Ν
Hairless	HR	G
Hela tumor suppression gene	HTS1	G
Heparin binding epidermal growth factor	HBEGF	G
Hepatitis B virus integration site 1	HVBS1	1
Hepatitis B virus integration site 2	HVBS6	1
High mobility group protein C	HMGIC	Ġ
High mobility group protein Y	HMGIY	Ğ
Histamine receptors, H1		N
Histamine receptors, H2		N
Histamine receptors, H3		N
i natarrima receptora, i lo		. 4

HLH transcription factor HAND1	HAND1	G
HLH transcription factor HAND2	HAND2	G
HMG-CoA reductase	HMGCR	E
HMG-CoA synthase	HMGCS2	Ε
Homeobox (HOX) gene A13	HOXA13	G
Homeobox 11	HOX11	G
Homeobox HB24	HLX1	Ğ
Homogentisate 1,2 dioxygenase	HGD	Ē
Hormone-sensitive lipase	HSL	E
HSSB, replication protein		Ē
Human placental lactogen	CSH1	Ğ
Ibonucleoside diphosphate reductase		E
Ikaros gene	IKAROS	G
Inhibin, alpha	INHA	Ğ
Inhibin, beta A	INHBA	Ğ
Inhibin, beta B	INHBB	G
Inhibin, beta C	INHBC	Ğ
Inositol 1,4,5-triphosphate receptor 3	ITPR3	G
Insulin	INS	G
Insulin receptor	INSR	Ğ
Insulin-like growth factor 1	IGF1	G
Insulin-like growth factor 1 receptor	IGF1R	Ğ
Insulin-like growth factor 2	IGF2	Ğ
Insulin-like growth factor 2 receptor	IGF2R	G
Integrin beta 1	ITGB1	G
Integrin beta 2	ITGB2	G
Integrin beta 3	·ITGB3	Ğ
Integrin beta 4	ITGB4	G
Integrin beta 5	ITGB5	Ğ
Integrin beta 6	ITGB6	Ğ
Integrin beta 7	ITGB7	Ğ
Integrin, alpha 1	ITGA1	Ğ
Integrin, alpha 2	ITGA2	Ğ
Integrin, alpha 4	ITGA4	Ğ
Integrin, alpha 5	ITGA5	Ğ
Integrin, alpha 6	ITGA6	Ğ
Integrin, alpha M	ITGAM	Ğ
Interferon alpha	IFNA1	ī
Interferon beta	IFNB	i
Interferon gamma	IFNG	i
Interferon gamma receptor 1	IFNGR1	i
Interferon gamma receptor 2	IFNGR2	i
Interferon regulatory factor 1	IRF1	i
Interferon regulatory factor 4	IRF4	l
Interleukin(IL) 1 receptor	IL1R	İ
Interleukin(IL) 1, alpha	IL1A	İ
Interleukin(IL) 1, beta	IL1B	İ
Interleukin(IL) 10	IL10	1
		•

•		
Interleukin(IL) 10 receptor	IL10R	ı
Interleukin(IL) 11	IL11	1
Interleukin(IL) 11 receptor	IL11R	1
Interleukin(IL) 12	IL12	- 1
Interleukin(IL) 12 receptor, beta 1	IL12RB1	i
Interleukin(IL) 13	IL13	l
interleukin(IL) 13 receptor	IL13R	l
Interleukin(IL) 2	IL2	1
Interleukin(IL) 2 receptor, alpha	IL2RA	ı
Interleukin(IL) 2 receptor, gamma	IL2RG	ı
Interleukin(IL) 3	IL3	ı
Interleukin(IL) 3 receptor	IL3R	i
Interleukin(IL) 4	1L4	ı
Interleukin(IL) 4 receptor	IL4R	í
Interleukin(IL) 5	IL5	ı
Interleukin(IL) 5 receptor	IL5R	i
Interleukin(IL) 6	IL6	1
Interleukin(IL) 6 receptor	IL6R	i
Interleukin(IL) 7	IL7	i
Interleukin(IL) 7 receptor	IL7R	ì
Interleukin(IL) 8	IL8	i
Interleukin(IL) 8 receptor	IL8R	ĺ
Interleukin(IL) 9	IL9	i
Interleukin(IL) 9 receptor	IL9R	i
Interleukin(IL) receptor antagonist 1	IL1RN, IL1RA	l
Janus kinase 1	JAK1	G
Janus kinase 2	JAK2	G
Janus kinase 3	JAK3	G
Laminin 5, alpha 3	LAMA3	G
Laminin 5, beta 3	LAMB3	G
Laminin 5, gamma 2	LAMC2	G
Laminin M	LAMM	G
Laminin receptor 1	LAMR1	G
Latent transforming growth factor-beta binding	LTBP2	G
protein 2		_
Leptin	LEP	G
Leptin receptor	LEPR	Ğ
Leukaemia inhibitory factor	LIF	Ğ
Leukaemia inhibitory factor receptor	LIFR	Ğ
Leukotriene A4 hydrolase		Ī
Leukotriene B4 receptor		i
Leukotriene C4 receptor		i
Leukotriene D4/E4 receptor		i
LH/choriogonadotropin (CG) receptor	LHCGR	Ġ
LIM homeobox protein 1	LHX1	G
LIM homeobox protein 2	LHX2	G
LIM homeobox protein 3	LHX3	G
LIM homeobox protein 4	LHX4	G
Environmonacy biotent 4		0

Limbic associated membrane protein LIM-domain only protein 1 LIM-domain only protein 2 LIM-domain only protein 3 LIM-domain only protein 4 Lipoma-preferred partner gene Lipoxygenase 12 (platelets) Lipoxygenase 5 (leukocytes) Long QT-type 2 potassium channels Lowe oculocerbrorenal syndrome gene Luteinizing hormone-releasing hormone Luteinizing hormone-releasing hormone receptor	LAMP LMO1 LMO2 LMO3 LMO4 LPP LOG12 LQT2, KCNH2 OCRL	000000
Lymphoblastic leukemia derived sequence 1 Lymphocyte-specific protein tyrosine kinase Lymphoid enhancer-binding factor	LYL1 LCK LEF-1	1
	MAF	G
Macrophage activating factor MAD (mothers against decapentaplegic,	MADH3	l G
Drosophila) homologue 3 MAD (mothers against decapentaplegic, Drosophila) homologue 4	MADH4	G
MADS box transcription-enhancer factor 2A	MEF2A	G
MADS box transcription-enhancer factor 2B	MEF2B	G
MADS box transcription-enhancer factor 2C	MEF2C	G
MADS box transcription-enhancer factor 2D	MEF2D	G
·	MPE	ı
Malignant proliferation, eosinophil gene MAPK kinase 1	MAPKK1; MEK1	G
MAPK kinase 4	MAPKK4; MEK4;	G
WAFT KIIIdSE 4	SERK1	G
MAPK kinase 6		_
MAPKK kinase	MAPKK6; MEK6 MAPKKK	G G
MAX-interacting protein 1	MXI1	G
MEK kinase, MEKK	IVIXII	E
Melanocortin 1 receptor	MC1R	T
Menin	MEN1	Ġ
Methionine adenosyltransferase	MAT1A, MAT2A	E
Methionine synthase	MTR	E
Methionine synthase reductase	MTRR	E
Methylguanine-DNA methyltransferase	MGMT	E
MHC Class I: A	MOM	
MHC Class I: B		i
MHC Class I: C		1
MHC Class I: LMP-2, LMP-7		i
MHC Class I: Tap1	ABCR, TAP1	i
MHC Class II: DP	HLA-DPB1	i
MHC Class II: DQ	, , , ,	i
MHC Class II: DR		i
MHC Class II: Tap2	TAP2, PSF2	i
		•

Motilin Msh homeobox homolog 1 Msh homeobox homolog 2 Mucin 18 Muscarinic receptor, M1 Muscarinic receptor, M2 Muscarinic receptor, M3 Muscarinic receptor, M4 Muscarinic receptor, M5 Mutated in colorectal cancers, MCC MutL homolog 1 MutS homolog 2 MutS homolog 3 Myelin protein peripheral 22 Myelodysplasia syndrome 1 gene Myeloid leukemia factor-1 N-acetyltransferase 1 N-acetyltransferase 2	MAPK MLN MSX1 MSX2 MUC18 CHRM1 CHRM2 CHRM3 CHRM4 CHRM5 MCC MLH1 MSH2 MSH3 PMP22 MDS1 MLF1 NAT1 NAT2 POR	00000FZZZZZGGGG%G-шшш
Nerve growth factor	NGF NGFR	G
Neuregulin	HGL	G G
Neurofibromin 2 Neurokinin A Neurokinin B Neuronal apoptosis inhibitory protein Neuropeptide Y Neuropeptide Y receptor Y1 Neuropeptide Y receptor Y2 Neurotensin Neurotensin receptor Neurotrophic tyrosine kinase receptor 1 Neutral endopeptidase Niacin receptor Nodal Norrie disease protein	NF1 NF2 NKNA NKNB NAIP NPY NPY1R NPY2R NTS NTS NTSR1 NTRK1 NODAL NDP NOTCH3	X G G Z Z – Z Z Z Z Z G E G G G G

Notch ligand - jagged 1	JAG1, AGS	G
Nuclear factor kappa beta	NFKB	1
Nuclear factor of activated T cells (NFAT)	NFATC	G
complex, cytosolic		
Nuclear factor of activated T cells (NFAT)	NFATP	G
complex, preexisting component		
Nuclear mitotic apparatus protein 1	NUMA1	G
Nucleophosmin	NPM1	T
Oligophrenin-1	OPHN1	Ġ
Oncogene abl1	ABL1	G
Oncogene abl2	7.021	G
Oncogene akt1		G
Oncogene akt2	AKT2	
Oncogene axl	AXL	G
Oncogene bcl2	AXL	G
•		G
Oncogene bcr/abl		G
Oncogene B-lym		G
Oncogene B-raf		G
Oncogene clk1		G
Oncogene c-myc	•	G
Oncogene cot	_	G
Oncogene crk	·	G
Oncogene crkl		G
Oncogene ect2		G
Oncogene ELK1	ELK1	G
Oncogene ELK2	ELK2	G
Oncogene ems1		G
Oncogene ERB		G
Oncogene ERB2		G
Oncogene ERBA		G
Oncogene ERBAL2		G
Oncogene ERG (early reponse gene)		G
Oncogene ETS1		G
Oncogene ETS2		G
Oncogene EVI1	EVI1	G
Oncogene fes		G
Oncogene fgr		G
Oncogene fos	FOS	G
Oncogene fps		G
Oncogene GLI1	GLI	G
Oncogene GLI2	GLI2	G
Oncogene GLI3	GLI3	G
Oncogene gro1		Ğ
Oncogene gro2		Ğ
Oncogene Ha-ras	HRAS	Ğ
Oncogene hs1		Ğ
Oncogene hst	FGF4	Ğ
Oncogene int1	WNT1	Ğ
)

Oncogene int2	FGF3	G
Oncogene int3	Notch4	G
Oncogene int4	WNT3	G
Oncogene jun	JUN	G
Oncogene KIT	KIT, PBT	G
Oncogene LCO	LCO	G
Oncogene I-myc		Ğ
Oncogene Ipsa		Ğ
Oncogene lyn		G
Oncogene maf		Ğ
Oncogene mas1		Ğ
Oncogene mcf2		G
Oncogene mdm2	MDM2	G
Oncogene mel		Ğ
Oncogene met	MET	G
Oncogene mos		G
Oncogene mpl		Ğ
Oncogene MUM1	MUM1	Ğ
Oncogene myb	MYB	Ğ
Oncogene myc	MYC	Ğ
Oncogene n-myc		G
Oncogene N-ras (neuroblastoma v-ras)	NRAS	Ğ
Oncogene ovc		G
Oncogene pim1		G
Oncogene pti-1sea		Ğ
Oncogene pvt1		Ğ
Oncogene raf	RAF	G
Oncogene ralb		G
Oncogene rel		G
Oncogene ret	RET	G
Oncogene r-myc		G
Oncogene ros		G
Oncogene R-ras		G
Oncogene sis	PDGFB	G
Oncogene ski		G
Oncogene sno	•	G
Oncogene spi1		G
Oncogene src		G
Oncogene tc21		G
Oncogene TEL	ETV6	G
Oncogene tim		G
Oncogene vavtrk		G
Oncogene v-Ki-ras2	KRAS2	G
Oncogene yes		G
Oncogene yuasa		G
Oncostatin M	OSM	G
Oncostatin M receptor	OSMR	G
Opioid receptor, delta	OPRD1	N

Opioid receptor, kappa	OPRK1	N
Opioid receptor, mu	OPRM1	Ν
Orexin	OX	G
Osteopontin	OPN	G
Oxytocin	OXT	Ν
Oxytocin receptor	OXTR	Ν
Paired box homeotic gene 3	PAX3	G
Paired box homeotic gene 6	PAX6	G
Paired box homeotic gene 7	PAX7	G
Paired-like homeodomain transcription factor 2		G
Paired-like homeodomain transcription factor 3		G
Parathyroid hormone	PTH	G
Parathyroid hormone receptor	PTHR1	G
Parathyroid hormone related-peptide	PTHrP	G
Parvalbumin	PVALB	G
Patched (Drosophila) homolog, PTCH	PTCH	G
PCNA (proliferating cell nuclear antigen)	DA // 171 /	E
Peanut-like 1	PNUTL1	1
Peroxisome proliferative activated receptor,	PPARA	T
alpha Peroxisome proliferative activated receptor,	PPARG	Т
gamma		
P-glycoprotein 1	PGY1	T
P-glycoprotein 3	PGY3	T
Phenylalanine hydroxylase	PAH	Ε
Phosphatase & tensin homolog	PTEN	G
Phosphatidylinositol glycan, class A	PIGA	G
(paroxysmal nocturnal hemoglobinuria)		
Phospholipase A2, group 10	PLA2G10	1
Phospholipase A2, group 1B	PLA2G1B	1
Phospholipase A2, group 2A	PLA2G2A	1
Phospholipase A2, group 2B	PLA2G2B	1
Phospholipase A2, group 4A	PLA2G4A	i
Phospholipase A2, group 4C	PLA2G4C	
Phospholipase A2, group 5	PLA2G5	1
Phospholipase A2, group 6	PLA2G6	1
Phospholipase C epsilon		1
Phosphomannomutase 1	PMM1	G
Phosphomannomutase 2	PMM2	G
Plasminogen	PLG	Ε
Plasminogen activator inhibitor 1	PAI1	Ε
Plasminogen activator inhibitor 2	PAI2	Ε
Plasminogen activator receptor, Urokinase	UPAR; PLAUR	S
Plasminogen activator, Tissue	PLAT; TPA	E
Plasminogen activator, Urokinase	UPA; PLAU	Ε
Platelet derived growth factor	PDGF	G
Platelet derived growth factor receptor	PDGFR	G
Platelet glycoprotein 1b, beta	GP1BB	I

Platelet glycoprotein 1b, gamma Platelet glycoprotein IX Platelet glycoprotein V Potassium inwardly-rectifying channel J1 Potassium inwardly-rectifying channel J11 Potassium voltage-gated channel A1 Potassium voltage-gated channel E1 Potassium voltage-gated channel Q1 Potassium voltage-gated channel Q2 Potassium voltage-gated channel Q3 POU domain, class 1, transcription factor 1 (Pit1)	GP1BG GP9 GP5 KCNJ1 KCNJ11 KCNA1 KCNA1 KCNE1 KCNQ1 KCNQ2 KCNQ3 POU1F1	zzzzzzg
POU domain, class 3, transcription factor 4 POU domain, class 4, transcription factor 3 Pre-B-cell leukemia transcription factor 1 Preproglucagon Preproglucagon Prion protein Prodynorphin Progesterone receptor (RU486 binding receptor)	POU3F4 POU4F3 PBX1 GCG;GLP1; GLP2 PRNP PGR	0000+220
Prohibitin Prolactin Prolactin receptor Prolactin releasing hormone Proliferin Promyelocytic-leukemia gene Proopiomelanocortin Prophet of Pit1 Prostacyclin synthase Prostaglandin 15-OH dehydrogenase Prostaglandin D - DP receptor Prostaglandin E1 receptor Prostaglandin E2 receptor Prostaglandin E3 receptor Prostaglandin F - FP receptor Prostaglandin IP receptor	PHB PRL PRLR PRH PLF PML POMC PROP1 HGPD; PGDH	0000020(
Prostate cancer anti-metastasis gene KAI1 Protein kinase B Protein kinase C, alpha Protein phosphatase 2, regulatory subunit A, beta isoform	KAI1 PRKB PRKCA PPP2R1B	G E E
Protein tyrosine phosphatase, non-receptor	PTPN12	G
type 12 Purine nucleoside phosphorylase Purinergic receptor P1A1 Purinergic receptor P1A2 Purinergic receptor P1A3	NP	E N N

Purinergic receptor P2X, 1	P2RX1	Ν
Purinergic receptor P2X, 2	P2RX2	N
Purinergic receptor P2X, 3	P2RX3	N
Purinergic receptor P2X, 4	P2RX4	
		N
Purinergic receptor P2X, 5	P2RX5	N
Purinergic receptor P2X, 6	P2RX6	Ν
Purinergic receptor P2X, 7	P2RX7	Ν
Purinergic receptor P2Y, 1	P2RY1	Ν
Purinergic receptor P2Y, 11	P2RY11	Ν
Purinergic receptor P2Y, 2	P2RY2	Ν
Rabphilin		N
RAD51, DNA repair protein	RAD51	G
RAD52, DNA repair protein	RAD52	G
RAD54, DNA repair protein	RAD54	G
· · · · · · · · · · · · · · · · · · ·	RAD55	
RAD55, DNA repair protein		G
RAD57, DNA repair protein	RAD57	G
RAS-associated protein, RAB3A	RAB3A	Ν
Ras-G-protein	RAS	G
Receptor tyrosine kinase (RTK), Nsk2	NSK2	G
Relaxin H1	RLN1	G
Relaxin H2	RLN2	G
Replication factor A		E
Replication factor C	RFC2	Ε
Retinoblastoma 1	RB1	G
Retinoic acid receptor, alpha	RARA	G
Retinoic acid receptor, beta	RARB	Ğ
Retinoic acid receptor, gamma	RARG	Ğ
Retinoschisis, X-linked, juvenile	RS	Ğ
Rhabdoid tumors	SMARCB1	G
	SIVIAINODI	E
Ribonucleotide reductase, RRM	DDI 424	
Ribosomal protein L13A	RPL13A	G
Ribosomal protein L17	RPL17	G
Ribosomal protein S6 kinase	RPS6KA3	Ε
RIGUI	RIGUI	G
Rim		Ν
Ryanodine receptor 1, skeletal	RYR1	G
S-adenosylmethionine decarboxylase, AMD		E
SAP (SLAM-associated protein)	SH2D1A	1
Secretin	SCT	Т
Secretin receptor, SCTR	SCTR	Ť
Serine hydroxymethyltransferase	SHMT	Ė
Serine/threonine kinase 11	STK11	G
Serine/threonine kinase 2	STK2	G
Serotonin receptor, 5HT1A	HTR1A	N
Serotonin receptor, 5HT1B	HTR1B	N
Serotonin receptor, 5HT1C	HTR1C	Ν
Serotonin receptor, 5HT1D	HTR1D	Ν
Serotonin receptor, 5HT1E	HTR1E	Ν

Serotonin receptor, 5HT1F	HTR1F	Ν
Serotonin receptor, 5HT2A	HTR2A	Ν
Serotonin receptor, 5HT2B	HTR2B	Ν
Serotonin receptor, 5HT2C	HTR2C	N
Serotonin receptor, 5HT3	HTR3	N
Serotonin receptor, 5HT4	HTR4	N
Serotonin receptor, 5HT5	HTR5	N
Serotonin receptor, 5HT6	HTR6	N
· ·	HTR7	
Serotonin receptor, 5HT7		N
Signal transducer and activator of transcription	SIAIT	G
1	07.70	_
Signal transducer and activator of transcription 2	SIAI2	G
Signal transducer and activator of transcription	STAT3	G
3		
Signal transducer and activator of transcription	STAT4	G
4		
Signal transducer and activator of transcription	STAT5	G
5	317.113	•
Signaling lymphocyte activation molecule	SLAM	1
Sine oculis homeobox, drosophila, homolog 1	SIX1	Ġ
•	SIX2	G
Sine oculis homeobox, drosophila, homolog 2		
Sine oculis homeobox, drosophila, homolog 5	SIX5	G
Small nuclear ribonucleoprotein polypeptide N	SNRPN	S
Smoothened (Drosophila) homolog	SMOH	G
Sodium channel, non-voltage gated 1, alpha	SCNN1A	N
	SCNN1B	N
Sodium channel, non-voltage gated 1, gamma	SCNN1G	N
Sodium channel, voltage gated, type V, alpha	SCN5A	Ν
polypeptide		
Sodium channel, voltage-gated, type 1, beta	SCN1B	Ν
polypeptide		
Solute carrier family 1 (glutamate transporter),	SLC1A1	T
member 1		
Solute carrier family 1 (glutamate transporter),	SLC1A2	Т
member 2		
Solute carrier family 12, member 1	SLC12A1	Т
Solute carrier family 12, member 2	SLC12A2	Ť
Solute carrier family 12, member 3	SLC12A3	Ť
Solute carrier family 19 (folate transporter),	SLC19A1	Ť
member 1	SECTORI	1
	CL COEA10	_
Solute carrier family 25, member 12	SLC25A12	Ţ
Solute carrier family 5 (sodium/glucose	SLC5A1	Т
transporter), member 1	01.0540	
Solute carrier family 5 (sodium/glucose	SLC5A2	T
transporter), member 2		
Solute carrier family 5 (sodium/glucose	SLC5A5	T
transporter), member 5		

	01.0540	_
Solute carrier family 5, member 3	SLC5A3	T
Solute carrier family 6 (GAMMA-	SLC6A1	T
AMINOBUTYRIC ACID transporter), member 1		
Solute carrier family 6 (neurotransmitter	SLC6A3	T
transporter, dopamine), member 3		
Solute carrier family 6 (neurotransmitter	SLC6A2	T
transporter, noradrenaline), member 2		
Solute carrier family 6 (neurotransmitter	SLC6A4	T
transporter, serotonin), member 4		
Somatostatin	SST	Ν
Somatostatin receptor, SSTR1	SSTR1	Ν
Somatostatin receptor, SSTR2	SSTR2	G
Somatostatin receptor, SSTR3	SSTR3	Ν
Somatostatin receptor, SSTR4	SSTR4	Ν
Somatostatin receptor, SSTR5	SSTR5	Ν
Sorcin	SRI	Т
SOS1 quanine nucleotide exchange factor	SOS1	G
SRY-box 11	SOX11	G
Stem cell factor	SCF	G
Steroid hormone receptor responsive DNA		G
elements		
Steroidogenic acute regulatory protein	STAR	Т
Substance P		N
Sulfonylurea receptor	SUR	G
Suppression of tumorigenicity 3 gene	ST3	G
Suppression of tumorigenicity 8 gene	ST8	G
Surfeit 1	SURF1	G
Synapsin 1a & 1b	SYN1	N
Synapsin 2a & 2b	SYN2	Ν
Synaptic vesicle protein 2	SV2	Ν
Synaptobrevin 1	SYB1	Ν
Synaptobrevin 2	SYB2	Ν
Synaptogyrin		Ν
Synaptophysin	SYP	Ν
Synaptosomal-associated protein, 25KD	SNAP25	Ν
Synaptotagmin 1	SYT1	Ν
Synaptotagmin 2	SYT2	Ν
Syndecan 1	SYND1	G
Syndecan 2	SYND2	G
Syndecan 3	SYND3	G
Syndecan 4	SYND4	G
Synovial sarcoma gene 1	SSX1	G
Synovial sarcoma gene 2	SSX2	Ğ
Syntaxin 1	STX1	N
Tachykinin receptor, NK1R	TACR1	N
Tachykinin receptor, NK2R	TACR2	N
Tachykinin receptor, NK3R	TACR3	N
Talin	TLN	G
	48 · 8	_

Talin, TLN		s
T-cell acute lymphocytic leukemia 1	TAL1	1
T-cell acute lymphocytic leukemia 2	TAL2	ı
T-cell receptor, alpha	TCRA	i
T-ceil receptor, delta	TCRD	i
Telomerase protein component		Ė
Tenascin (cytotactin)		S
Tenascin XA	TNXA	S
Terminal deoxynucleotidyltransferase, TDT	11701	E
	TSPY	G
Testis-specific protein Y	THPO	G
Thrombopoietin	TBXAS1	9
Thromboxane A synthase 1		1
Thromboxane A2	TXA2	1
Thromboxane A2 receptor	TBXA2R	1
Thy-1 T-cell antigen	THY1	1
Thymidylate synthase	TYMS	E
Thymopoietin	TMPO	G
Thymosin		1
Thyroid-stimulating hormone receptor	TSHR	G
Thyroid-stimulating hormone, alpha	TSHA	G
Thyroid-stimulating hormone, beta	TSHB	G
Thyrotropin releasing hormone	TRH	N
Thyrotropin releasing hormone	TRH	G
Thyrotropin releasing hormone receptor	TRHR	N
Tip-associated protein	TAP	1
Tissue inhibitor of metalloproteinase 1, TIMP1	TIMP1	Ε
Tissue inhibitor of metalloproteinase 2, TIMP2	TIMP2	E
Tissue inhibitor of metalloproteinase 3, TIMP3	TIMP3	Ε
Tissue inhibitor of metalloproteinase 4, TIMP4	TIMP4	EET
Topoisomerase II		Ε
Transacylase		Ε
Transcobalamin 1, TCN1		
Transcobalamin 2, TCN2	TCN2	T
Transcription factor 1, hepatic	TCF1	G
Transcription factor 2, hepatic	TCF2	G
Transcription factor 3	TCF3	G
Transcription factor binding to IGHM enhancer		G
3		
Transcription termination factor, RNA	TTF1	G
polymerase 1		_
•	TTF2	G
Transcription termination factor, RNA	1112	_
polymerase 2	TTF3	G
Transcription termination factor, RNA	1113	0
polymerase 3	TE	_
Transferrin	TERC	G
Transferrin receptor	TFRC	G
Transforming growth factor, alpha	TGFA	G
Transforming growth factor, beta 2	TGFB2	G

Transforming growth factor, beta induced Transforming growth factor, beta receptor 2 Translocation in renal carcinoma on chromosome 8 gene	TGFBI TGFBR2 TRC8	G G G
Tuberous sclerosis 1 Tuberous sclerosis 2 Tubulin	TSC1 TSC2	G G S
Tumor susceptibility gene 101 Tumour necrosis factor (TNF) receptor associated factor 1	TSG101 TRAF1	G I
Tumour necrosis factor (TNF) receptor associated factor 2	TRAF2	1
Tumour necrosis factor (TNF) receptor associated factor 3	TRAF3	I
Tumour necrosis factor (TNF) receptor associated factor 4	TRAF4	1
Tumour necrosis factor (TNF) receptor associated factor 5	TRAF5	i
Tumour necrosis factor (TNF) receptor associated factor 6	TRAF6	l
Tumour necrosis factor alpha Tumour necrosis factor alpha receptor Tumour necrosis factor beta Tumour necrosis factor beta receptor Tumour protein p53 Tumour protein p63 Tumour protein p73 Tumour protein, translationally-controlled 1 Tumour suppresssor gene DRA Twist (Drosophila) homolog Ubiquitin Ubiquitin B Ubiquitin B Ubiquitin C Ubiquitin fusion degeneration 1-like Ubiquitin protein ligase E3A Vacuolar proton pump, subunit 1 Vacuolar proton pump, subunit 3	TNFA TNFAR TNFB TNFBR TP53, P53 TP63 TP73 TPT1 DRA TWIST UBB UBC UFD1L UBE3A VPP1 VPP3	
Vasoactive intestinal polypeptide Vasoactive intestinal polypeptide receptor Vitamin B12-binding (R) protein Vitamin D receptor v-myc avian myelocytomatosis viral oncogene	VIP VIPR VDR MYC	N N G G G
homolog Von Hippel-Lindau gene Werner syndrome helicase Wilms tumour gene 1 Wilms tumour gene 2	VHL WRN WT1 WT2	G G G

Wilms tumour gene 4 Winged helix nude Wiskott-Aldrich syndrome protein Xeroderma pigmentosum, complementation	WT4 WHN WASP, THC XPB	G G I E
group B Xeroderma pigmentosum, complementation group C	XPC	E
Xeroderma pigmentosum, complementation		Ε
group D Xeroderma pigmentosum, complementation group E		Ε
Xeroderma pigmentosum, complementation group F	XPF	E
Xeroderma pigmentosum, complementation	ERCC5	E
group G X-ray repair gene YY1 transcription factor Zinc finger protein 198 Zinc finger protein HRX	XRCC9 YY1 ZIC198 ALL1	G G S I

- A set of probes, said probes being antibodies or antibody fragments which interact with specific expressed proteins encoded by gene sequences of a group of genes, said probes being for detecting relevant variants (mutations and polymorphisms), e.g. nucleotide substitutions (missense, nonsense, splicing and regulatory), small deletions, small insertions, small insertion deletions, gross insertions, gross deletions, duplications, complex rearrangements and repeat variations in a target group of genes; characterised in that said group is a core group of genes consisting of substantially all of the genes defined in claim 35.
- 37. A set according to claim 35 or 36 in which a minority of said probes for listed genes are absent.
- 38. A set according to claim 35 or 36 in which a limited number of additional probes are present together with substantially all of the probes for the listed genes.
- 39. A set according to claim 35 or 36 in which a limited number of probes are replaced by probes for non-listed genes.
- 40. A set of probes for a core group of genes according to any of claims 35 to 39 in which each gene to be probed is substantially similar (greater than 85% homologous) in sequence to the respective member of the core list of genes.
- 41. A set according to any of claims 35 to 40 consisting of probes for members of a sub-group of the core group.
- 42. A set according to any preceding claim in which said probes are in the form of an array and are spatially arranged at known locations on a substrate.

- 43. A set according to any preceding claim wherein said probes are on a substrate which forms part of or consists of one or more chip plate(s), for use in a chip assay for detection of said gene variants.
- 44. A set according t any preceding claim in which said probes are mass, electrostatic or fluorescence tagged probes.
- 45. A set according to claim 42 or 43 in which said substrate is a semiconductor microchip.
- 46. A set according to any preceding claim for use in a biological assay for detection of said gene variants.
- 47. A set according to any preceding claim for use in the measurement of differential gene expression levels.
- 48. A medical device including a set according to any preceding claim for use in an assay for detection of said gene variants.
- 49. A medical device including a set according to any of claims 35 to 47 for use in an array for detection of differential gene expression levels.
- 50. A method for use in assessing the genomic profile of a patient or individual, the method comprising testing for and detecting the presence or absence of DNA or RNA encoding the relevant structural variants (as defined in claim 35) in a target group of genes by hybridising a nucleic acid-containing sample from said patient or individual to a set according to any of claims 35 and 37 to 47 and relating the probe hybridisation pattern to said variations.
- 51. A method for use in assessing the the genomic profile of a patient or individual, the method comprising testing for and detecting the presence or absence of DNA or RNA encoding the relevant structural variants (as defined in claim 36) in a target group of genes by interacting an expressed-protein-containing sample from said patient or individual with a set of probes according to any of claims 36 to 47 and relating the probe interaction pattern to said variations.
- 52. Use of a set or device according to any of claims 35 to 47 for the prognosis and management of patients suffering from or at risk of developing symptoms and consequences of cancer.
- 53. Use of a set or device according to any of claims 35 to 47 for predicting likely therapeutic response and adverse events following therapeutic intervention.
- 54. Use of a set or device according to any of claims 35 to 47 for predicting likely therapeutic response and adverse events following the intake of a specific drug.
- 55. Use of a set or device according to any of claims 35 to 47 for predicting likely patterns of symptom clusters (symptom profiles) in disease and the likelihood of subsequent, contingent, disease or symptoms.
- 56. Use of a set or device according to any of claims 35 to 47 for general health screening, occupational health purposes, healthcare planning on a population basis and other healthcare management utilisations.
- 57. Use of a set or device according to any of claims 35 to 47 for the development of new strategies of therapeutic intervention and in clinical trials.
- 58. Use of a set or device according to any of claims 35 to 47 for construction of and generation of algorithms for patient and healthcare management.
- 59. Use of a set or device according to any of claims 35 to 47 for modelling or assessing the impact of diseases or healthcare management strategies on

- individuals, groups, patient cohorts or populations
- 60. Use of a set or device according to any of claims 35 to 47 for modelling, assessing or exploring the theoretical impact of diseases and healthcare management strategies on individuals, groups, patient cohorts or populations.
- 61. Use of a set or device according to any of claims 35 to 47 for predicting optimum configuration/management of thereapeutic intervention.
- 62. A method according to claim 50 or 51 in which the identification of gene variants is indicative of a higher risk of developing symptoms and consequences of cancer for the patient or individual.
- 63. A method for generating a model to assess whether a patient or individual or population or group is or are likely to develop symptoms and consequences of cancer which method comprises:
- i) obtaining DNA or RNA or protein samples from patients or individuals diagnosed as suffering from cancer;
- ii) obtaining DNA or RNA or protein samples from a control group of subjects diagnosed as not suffering from the cancer;
- iii) analysing the samples obtained in i) and ii) to identify the polymorphic variations encoded in the core group of genes as defined in any of claims 35 to 41;
- iv) calculating the frequencies of these alleles in the samples from i) and ii);
- v) comparing the frequencies of these alleles in i) and ii);
- vi) performing a statistical analysis on the results from v) in order to generate a model for assessing the risk of developing symptoms and consequences of cancer.
- A method for assessing whether a given subject will be at risk of developing symptoms and consequences of cancer, which comprises comparing said subject's genotype with a model generated by the method of claim 63.
- 65. A method according to any of claims 50, 51, 63 and 64 wherein at least one step is computer-controlled.
- 66. An assay suitable for use in a method according to any of claims 50, 51, 63 and 64; said assay comprising means for determining the presence or absence of relevant polymorphic variants of the core group of genes as defined in any of claims 35 to 41 in a biological sample.
- 67. A formatted assay technique (kit) for use in assessing the risk of a patient or individual developing symptoms and consequences of cancer; said kit comprising:
 - i) means for testing for the presence or absence or DNA or RNA encoding relevant polymorphic variants of the core group of genes as defined in claim 35 or 37 to 41 in a sample of human DNA;
 - ii) reagents for use in the detection process
 - iii) readout indicating the probability of a patient or individual developing symptoms and consequences of cancer.
- 68. A formatted assay technique (kit) for use in assessing the risk of a patient or individual developing symptoms and consequences of cancer; said kit comprising:
 - i) means for testing for the presence or absence of proteins encoded by the core group of genes and/or relevant polymorphic variants of the core

- group of genes as defined in any of claims 36 to 41 in an expressed-protein-containing human sample;
- ii) reagents for use in the detection process
- readout indicating the probability of a patient or individual developing symptoms and consequences of cancer.
- A set of probes according to claim 35, wherein the probes are selected from the group consisting of oligonucleotides and polynucleotides.
- 70. A set of nucleotide probes for detecting relevant variants (mutations and polymorphisms), e.g. nucleotide substitutions (missense, nonsense, splicing and regulatory), small deletions, small insertions, small insertion deletions, gross insertions, gross deletions, duplications, complex rearrangements and repeat variations in a target group of genes which relate to CNS dysfunction, damage or disease; said probes being complementary to DNA and RNA sequences of said group of genes; characterised in that said group is a core group of genes consisting of substantially all of the following:

KEY TO 'PROTEIN FUNCTION' COLUMN

- E ENZYME
- T TRANSPORT & STORAGE
- S STRUCTURAL
- I IMMUNITY
- N NERVOUS TRANSMISSION
- G GROWTH & DIFFERENTIATION

CNS GENE LIST	HUGO gene symbol	Protein function
11beta hydroxysteroid dehydrogenase 2	HSD11B2	E
2,3-bisphosphoglycerate mutase	BPGM	E
2,4-dienoyl CoA reductase	DECR	E
3 beta hydroxysteroid dehydrogenase 2	HSD3B2	E
3-oxoacid CoA transferase	OXCT	Ε
4-hydroxyphenylpyruvate dioxygenase	HPD	E
5,10-methylenetetrahydrofolate reductase	MTHFR	Ε
(NADPH)		
6-pyruvoyltetrahydropterin synthase	PTS	E
Acetoacetyl 2-CoA-thiolase	ACAT2	Е
Acetyl CoA acyltransferase	ACAA	E
Acetyl CoA carboxylase alpha	ACACA	E
Acetylcholine receptor, nicotinic, alpha A1	CHRNA1	N
Acetylcholine receptor, nicotinic, alpha A2	CHRNA2	N
Acetylcholine receptor, nicotinic, alpha A3	CHRNA3	N
Acetylcholine receptor, nicotinic, alpha A4	CHRNA4	N
Acetylcholine receptor, nicotinic, alpha A5	CHRNA5	N
Acetylcholine receptor, nicotinic, alpha A6	CHRNA6	N
Acetylcholine receptor, nicotinic, alpha A7	CHRNA7	N
Acetylcholine receptor, nicotinic, beta 1	CHRNB1	N
Acetylcholine receptor, nicotinic, beta 2	CHRNB2	N

Acetylcholine receptor, nicotinic, beta 3 Acetylcholine receptor, nicotinic, beta 4 Acetylcholine receptor, nicotinic, epsilon Acetylcholine receptor, nicotinic, gamma Acetylcholinesterase Acyl CoA dehydrogenase, long chain Acyl CoA dehydrogenase, medium chain Acyl CoA dehydrogenase, short chain	CHRNB3 CHRNB4 CHRNE CHRNG ACHE ACADL ACADM ACADS	X
Acyl-CoA thioesterase		E
Adaptin, beta 3A	ADTB3A	T
Adducin, alpha	ADD1	S
Adducin, beta	ADD2	S
Adenosine monophosphate deaminase	AMPD	E
Adenosine receptor A1	ADORA1	N
Adenosine receptor A2A	ADORA2A	N
Adenosine receptor A2B	ADORA2B	N
Adenosine receptor A3	ADORA3	N
Adenyl cyclase		N
Adenylate cyclase 1	ADCY1	Ε
Adenylate cyclase 2	ADCY2	E
Adenylate cyclase 3	ADCY3	E
Adenylate cyclase 4	ADCY4	E
Adenylate cyclase 5	ADCY5	E
Adenylate cyclase 6	ADCY6	
Adenylate cyclase 7	ADCY7	E
Adenylate cyclase 8	ADCY8	E
Adenylate cyclase 9	ADCY9	E
Adenylosuccinate lyase	ADSL	
Adrenergic receptor, alpha1	ADRA1	N
Adrenergic receptor, alpha2	ADRA2	N
Adrenergic receptor, beta1	ADRB1	N
Adrenergic receptor, beta2	ADRB2 ADRB3	N N
Adrenergic receptor, beta3	ACTHR	
Adrenocorticotrophic hormone (ACTH)	ACIAR	G
receptor	ALD.	Ε
Adrenoleukodystrophy gene	ALD ALB	T
Albumin, ALB		
Aldehyde dehydrogenase 10	ALDH10	E E
Aldolase A	ALDOR	E
Aldolase B	ALDOB	E
Aldolase C	ALDOC	G
Aldosterone receptor	MLR	
Alpha 2 macroglobulin	A2M	1
alpha tectorin	TECTA	G N
alpha thalassemia gene	ATRX	
alpha1-antitrypsin	PI DI I	Ε
alpha2-antiplasmin	PLI	E
alpha-Galactosidase A	GLA	Ε

alpha-ketoglutarate dehydrogenase alpha-L-Iduronidase alpha-synuclein Aminomethyltransferase Aminopeptidase P Amylo-1,6-glucosidase Amyloid beta (A4) precursor protein-binding, APBB1	IDUA SNCA AMT XPNPEP2 AGL APBB1	E E E E E E E E
Amyloid beta A4 precursor protein Amyloid beta A4 precursor-like protein Angiopoietin 1 Angiopoietin 2 Angiotensin converting enzyme Angiotensin receptor 1 Angiotensin receptor 2 Angiotensinogen Antidiuretic hormone receptor Antithrombin III Apolipoprotein A II Apolipoprotein B Apolipoprotein C1 Apolipoprotein C3 Apolipoprotein C3 Apolipoprotein E Apolipoprotein H Archaete-scute homolog 2 Arginase Arginine vasopressin Arginosuccinate lyase Arylsulfatase B Arylsulfatase B Arylsulfatase E Arylsulfatase F Aspartoacylase Aspartylglucosaminidase Astrotactin Ataxia telangiectasia complementation group D	APP APLP ANGPT1 ANGPT2 ACE, DCP1 AGTR1 AGTR2 AGT ADHR AT3 APOA1 APOA2 APOB APOC1 APOC2 APOC3 APOD APOE APOH ASH2 ARG1 AVP ASL ASS ARSA ARSB ARSD ARSE ARSF ASPA AGA ASTN ATD, ATDC	NNGGETTETETTTTTTGENEEEEEEEGG
Ataxia telangiectasia gene, AT ATP-binding cassette transporter 7 Atrial natriuretic peptide Atrial natriuretic peptide receptor A Atrial natriuretic peptide receptor B Atrial natriuretic peptide receptor C	ATM ABC7 ANP NPR1 NPR2 NPR3	G

Bagpipe homeobox, drosophila homolog of, 1 beta-Glucuronidase beta-synuclein Bilirubin UDP-glucuronosyltransferase Bloom syndrome protein Bradykinin receptor B1 Bradykinin receptor B2	BAPX1 GUSB SNCB BLM	GENEG
Brain derived neurotrophic factor	BDNF	G
Brain derived neurotrophic factor (BDNF)	BDNFR	G
receptor	5015	_
Butyrylcholinesterase	BCHE	E
Ca(2+) transporting ATPase, slow twitch	ATP2A2 CDH1	T
Cadherin EP	CDHI	G G
Cadhein N	CDH2	G
Cadherin P	CDH3	G
Calbindin 1	CALB1	G
Calbindin D9K	CALB3	G
Calcineurin A1	CALNA1	Ī
Calcineurin A2	CALNA2	i
Calcineurin A3	CALNA3	i
Calcineurin B		İ
Calcitonin/Calcitonin gene-related peptide	CALCA	N
alpha		
Calcium channel, voltage-dependent, alpha	CACNA1F	Ν
1F subunit		
Calcium channel, voltage-dependent, Alpha-	CACNA1B	Ν
1B (CACNL1A5)		
Calcium channel, voltage-dependent, Alpha-	CACNA1C	Ν
1C	CACNIAAD	N.I.
Calcium channel, voltage-dependent, Alpha-1D	CACNATO	N
Calcium channel, voltage-dependent, Alpha-	CACNA1E	Ν
1E (CACNL1A6)	ONOINTE	11
Calcium channel, voltage-dependent, Alpha-	CACNA2	N
2/delta		
Calcium channel, voltage-dependent, Beta 1	CACNB1	Ν
Calcium channel, voltage-dependent, Beta 3	CACNB3	Ν
Calcium channel, voltage-dependent, L type,	CACNA1S	Ν
alpha 1S subunit		
Calcium channel, voltage-dependent,	CACNG2	N
Neuronal, Gamma		
Calcium channel, voltage-dependent, P/Q	CACNA1A	N
type, alpha 1A subunit		
Calcium channel, voltage-dependent, T-type		N
Calmodulin 1	CALM1	G
Calmodulin 2	CALM2	G
Calmodulin 3	CALM3	G

Calmodulin-dependant protein kinase II	CAMK2A	G
Calnexin	CANX	G
Calpain	CAPN, CAPN3	E.
Calretinin	CALB2	N.
Cannabinoid receptor	CNR1	N
·	CA3	E
Carbonic anhydrase 3	CA4	E
Carbonic anhydrase 4	CA1	
Carbonic anhydrase, alpha	CA1	Ε
Carbonic anhydrase, beta		E
Cardiac-specific homeobox, CSX	CSX	G
Carnitine acetyltransferase	CRAT	E
Carnitine acylcarnitine translocase	CACT	E
Carnitine transporter protein	CDSP, SCD	Т
Carnosinase	54554	N
Caspase 1	CASP1	G
Catechol-O-methyltransferase	COMT	E
CD1	CD1	i
CD4	CD4	I
Cell adhesion molecule, neural, NCAM1	NCAM1	G
Cell adhesion molecule, neural, NCAM120	NCAM120	G
Cell adhesion molecule, neural, NCAM2	NCAM2	G
Ceroid lipofuscinosis neuronal 2	CLN2	Ν
Ceroid lipofuscinosis neuronal 3	CLN3	Ν
Ceroid lipofuscinosis neuronal 4	CLN4	Ν
Ceroid lipofuscinosis neuronal 5	CLN5	Ν
Ceroid lipofuscinosis neuronal 6	CLN6	Ν
Chemokine receptor CCR2	CCR2	l
Chemokine receptor CCR3	CCR3	1
Chemokine receptor CCR5	CCR5	l
Chemokine receptor CXCR4	CXCR4	i
Chloride channel 1, skeletal muscle	CLCN1	S
Cholecystokinin	CCK	Ν
Cholecystokinin B receptor	CCKBR	Ν
Choline acetyltransferase	CHAT	Ε
Choroideremia gene	СНМ	S
Chromogranin A	CHGA	Ğ
Chymotrypsinogen		E
Ciliary neurotrophic factor (CNTF)	CNTF	G
Ciliary neurotrophic factor (CNTF) receptor	CNTFR	G
Clathrin		Τ
CoA transferase		Ε
Cochlin	COCH	ı
Cockayne syndrome gene, CKN1	CKN1	G
Cofilin		S
Collagen I alpha 1	COL1A1	S S
Collagen I alpha 2	COL1A2	S
Collagen II alpha 1	COL2A1	S
Collagen III alpha 1	COL3A1	S S
g a.p.,a .		_

Cyclic nucleotide phosphodiesterase 6B Cyclic nucleotide phosphodiesterase 7	PDE6B PDE7	E
Cyclic nucleotide phosphodiesterase 8 Cyclic nucleotide phosphodiesterase 9A	PDE8 PDE9A	E E
Cyclin-dependent kinase 2	CDK2	G
Cyclooxygenase 1	COX1	Ē
Cyclooxygenase 2	COX2	Ē
CYP11A1	CYP11A1	E
CYP11B1	CYP11B1	E
CYP11B2	CYP11B2	E
CYP17	CYP17	E
CYP19	CYP19	Е
CYP1A1	CYP1A1	E
CYP1A2	CYP1A2	E
CYP1B1	CYP1B1	E
CYP21	CYP21	Ē
CYP24	CYP24	E
CYP27	CYP27	E
CYP27B1	PDDR	E
CYP2A1	CYP2A1 CYP2A13	E E
CYP2A13 CYP2A3	CYP2A13	E
CYP2A5 CYP2A6V2	CYP2A6V2	E
CYP2A7	CYP2A7	Ē
CYP2B6	CYP2B6	Ē
CYP2C18	CYP2C18	Ē
CYP2C19	CYP2C19	Ē
CYP2C8	CYP2C8	Ε
CYP2C9	CYP2C9	E
CYP2D6	CYP2D6	E
CYP2E1	CYP2E1	Ε
CYP2F1	CYP2F1	E
CYP2J2	CYP2J2	E
CYP3A3	CYP3A3	E
CYP3A4	CYP3A4	E
CYP3A5	CYP3A5	E
CYP3A7	CYP3A7	E
CYP4A11	CYP4A11	E
CYP4B1	CYP4B1	E
CYP4F2	CYP4F2 CYP4F3	E E
CYP4F3	CYP51	E
CYP51 CYP5A1	CYP5A1	E
CYP7A	CYP7A	E
CYP8	CYP8	E
Cystathionase	CTH	E
Cystathione beta synthase	CBS	Ē
Cystatin B	CSTB	T

Electron-transfering-flavoprotein alpha Electron-transfering-flavoprotein beta Electron-transferring flavoprotein	ETFA ETFB ETFDH	T T E
dehydrogenase		
Emerin	EMD	T
Empty spiracles (drosophila) homologue 1	EMX1	G
Empty spiracles (drosophila) homologue 2	EMX2	G
Endobrevin	VAMP8	Ν
Endothelin 1	EDN1	Ν
Endothelin 2	EDN2	Ν
Endothelin 3	EDN3	Ν
Endothelin converting enzyme	ECE1	Ν
Endothelin receptor type A	EDNRA	Ν
Endothelin receptor type B	EDNRB	Ν
Enolase	ENO1	Ε
Enoyl CoA isomerase		Ε
Enoyl CoA reductase		Ε
Enterokinase	PRSS7, ENTK	Ε
Ephrin-A	EFNA	G
Ephrin-B	EFNB	G
Epidermal growth factor	EGF	G
Epidermal growth factor receptor	EGFR	G
Epilepsy, progressive myoclonic 2 gene	EPM2A	Ε
EWS RNA-binding protein	EWSR1	G
Excision repair complementation group 4	ERCC4	Ε
protein		
Exostosin 1	EXT1	S
Exostosin 2	EXT2	S
Factor 1 (No. one)	F1	1
Factor III	F3	- 1
Factor IX	F9	I
Factor V	F9 F5	1
Factor V Factor VII	F9 F5 F7	1
Factor V Factor VIII	F9 F5 F7 F8	
Factor V Factor VII Factor VIII Factor X	F9 F5 F7 F8 F10	
Factor V Factor VII Factor VIII Factor X Factor XI	F9 F5 F7 F8 F10 F11	
Factor V Factor VII Factor VIII Factor X Factor XI Factor XII	F9 F5 F7 F8 F10 F11	
Factor V Factor VII Factor VIII Factor X Factor XI Factor XII Factor XIII A & B	F9 F5 F7 F8 F10 F11 F12 F13A & F13B	
Factor V Factor VII Factor VIII Factor X Factor XI Factor XII Factor XIII A & B Fanconi anemia, complementation group A	F9 F5 F7 F8 F10 F11 F12 F13A & F13B FANCA	1 1 1 1 T
Factor V Factor VII Factor VIII Factor X Factor XI Factor XII Factor XIII A & B Fanconi anemia, complementation group A Fanconi anemia, complementation group C	F9 F5 F7 F8 F10 F11 F12 F13A & F13B FANCA FANCC	Т
Factor V Factor VII Factor VIII Factor X Factor XI Factor XII Factor XIII A & B Fanconi anemia, complementation group A Fanconi anemia, complementation group C Fanconi anemia, complementation group D	F9 F5 F7 F8 F10 F11 F12 F13A & F13B FANCA FANCC FANCD	
Factor V Factor VII Factor VIII Factor X Factor XI Factor XII Factor XIII A & B Fanconi anemia, complementation group A Fanconi anemia, complementation group C Fanconi anemia, complementation group D Fibrillin 2	F9 F5 F7 F8 F10 F11 F12 F13A & F13B FANCA FANCC FANCD FBN2	T T G
Factor V Factor VIII Factor VIII Factor X Factor XI Factor XII Factor XIII A & B Fanconi anemia, complementation group A Fanconi anemia, complementation group C Fanconi anemia, complementation group D Fibrillin 2 Fibrinogen alpha	F9 F5 F7 F8 F10 F11 F12 F13A & F13B FANCA FANCC FANCD FBN2 FGA	T T G S
Factor VII Factor VIII Factor X Factor XI Factor XII Factor XIII A & B Fanconi anemia, complementation group A Fanconi anemia, complementation group C Fanconi anemia, complementation group D Fibrillin 2 Fibrinogen alpha Fibrinogen beta	F9 F5 F7 F8 F10 F11 F12 F13A & F13B FANCA FANCC FANCD FBN2 FGA FGB	T T G S S
Factor VII Factor VIII Factor X Factor XI Factor XII Factor XIII A & B Fanconi anemia, complementation group A Fanconi anemia, complementation group C Fanconi anemia, complementation group D Fibrillin 2 Fibrinogen alpha Fibrinogen gamma	F9 F5 F7 F8 F10 F11 F12 F13A & F13B FANCA FANCC FANCD FBN2 FGA FGB FGG	T T G S S S
Factor VII Factor VIII Factor X Factor XI Factor XII Factor XIII A & B Fanconi anemia, complementation group A Fanconi anemia, complementation group C Fanconi anemia, complementation group D Fibrillin 2 Fibrinogen alpha Fibrinogen beta Fibrinogen gamma Fibroblast growth factor	F9 F5 F7 F8 F10 F11 F12 F13A & F13B FANCA FANCC FANCD FBN2 FGA FGB FGG FGF1	T T G S S S G
Factor VII Factor VIII Factor X Factor XI Factor XII Factor XIII A & B Fanconi anemia, complementation group A Fanconi anemia, complementation group C Fanconi anemia, complementation group D Fibrillin 2 Fibrinogen alpha Fibrinogen gamma	F9 F5 F7 F8 F10 F11 F12 F13A & F13B FANCA FANCC FANCD FBN2 FGA FGB FGG	T T G S S S

Fragile site, folic acid type, rare, fra(X) E Fragile site, folic acid type, rare, fra(X) F	FGFR3 FN1 FLII FSHR, ODG1 FSHB FKHL10 FRAXA FRAXE FRAXF	000000EZZZ
Frataxin	FRDA FBP1	G E
Fructose-1,6-diphosphatase	FCMD	G
Fukuyama type congenital muscular	CIVID	G
dystrophy GABA receptor, alpha 1	GABRA1	Ν
GABA receptor, alpha 1	GABRA2	N
GABA receptor, alpha 3	GABRA3	N
GABA receptor, alpha 4	GABRA4	N
GABA receptor, alpha 5	GABRA5	Ν
GABA receptor, alpha 6	GABRA6	Ν
GABA receptor, beta 1	GABRB1	Ν
GABA receptor, beta 2	GABRB2	Ν
GABA receptor, beta 3	GABRB3	N
GABA receptor, gamma 1	GABRG1	N
GABA receptor, gamma 2	GABRG2	N
GABA receptor, gamma 3	GABRG3	N
GABA transaminase	ABAT	E
Galactocerebrosidase	GALC	E
Galactose 1-phosphate uridyl-transferase	GALT CT1	E G
Galactosyltransferase 1	GT1 GGTA1	G
Galactosyltransferase, alpha 1,3	B3GALT	G
Galactosyltransferase, beta 3 Galanin	GAL	N
Galanin receptor	GALNR1	N
Gamma-glutamyltransferase 1	GGT1	T
Gap junction protein beta 2	GJB2	Ť
Gap junction protein beta 3	GJB3	T
Gastric Intrinsic factor, GIF	GIF	Ε
Gastrulation brain homeobox 2	GBX2	G
Geniospasm 1	GSM1	G
Gephyrin		Ν
Glial-cell derived neurotrophic factor (GDNF)		Ν
receptor		
Glial-cell derived neurotrophic factor, GDNF	GDNF	N
Glucosidase, acid alpha	GAA	Ε
Glutamate decarboxylase, GAD	GAD1	E
Glutamate dehydrogenase	GLUD1	E
Glutamate receptor 1	GLUR1	Ν

Glutamate receptor 2	GLUR2	Ν
Glutamate receptor 3	GLUR3	N
Glutamate receptor 4	GLUR4	N.
Glutamate receptor 5	GLUR5	N
Glutamate receptor 6	GLUR6	N
Glutamate receptor 7	GLUR7	N
Glutamate receptor, ionotropic, NMDA 1	NMDAR1	N
Glutamate receptor, ionotropic, NMDA 2A	NMDAR2A	N
Glutamate receptor, ionotropic, NMDA 2B	NMDAR2B	N
Glutamate receptor, ionotropic, NMDA 2C	NMDAR2C	N
Glutamate receptor, ionotropic, NMDA 2D	NMDAR2D	N
Glutamate-cysteine ligase	GLCLC	Ε
Glutaryl-CoA dehydrogenase	GCDH	E
Glutathione	GSH	T
Glutathione S-transferase, GSTZ1	GSTZ1	E
Glutathione synthetase	GSS	Е
Glyceraldehyde-3-phosphate	GAPDH	E
dehydrogenase, GAPDH		
Glycerol kinase	GK	Ε
Glycinamide ribonucleotide (GAR)	GART	Ε
transformylase		
Glycine dehydrogenase	GLDC	Ε
Glycine receptor, alpha	GLRA2	Ν
Glycine receptor, beta		Ν
Glycine transporter	GLYT	Ν
Glycogen phosphorylase	PYGL	Ε
GM2 ganglioside activator protein, GM2A	GM2A	Ε
Gonadotropin releasing hormone receptor	GNRHR	G
GTP cylcohydrolase 1	GCH1	G
Guanidinoacetate N-methyltransferase	GAMT	E
Guanine nucleotide-binding protein, alpha	GNAO1	Ν
activating activity polypeptide, GNAO	6 3444	
Guanine nucleotide-binding protein, alpha	GNAI1	Ν
inhibiting activity polypeptide 1, GNAI1	01110	
Guanine nucleotide-binding protein, alpha	GNAI2	Ν
inhibiting activity polypeptide 2, GNAI2	CNAIS	
Guanine nucleotide-binding protein, alpha	GNAI3	Ν
inhibiting activity polypeptide 3, GNAI3	GNAS1	N.I
Guanine nucleotide-binding protein, alpha	GNAST	Ν
stimulating activity polypeptide, GNAS1	CNASS	N.I
Guanine nucleotide-binding protein, alpha	GNAS2	Ν
stimulating activity polypeptide, GNAS2	CNASS	N.I
Guanine nucleotide-binding protein, alpha	GNAS3	Ν
stimulating activity polypeptide, GNAS3	CNIASA	N1
Guanine nucleotide-binding protein, alpha	GNAS4	Ν
stimulating activity polypeptide, GNAS4 Guanine nucleotide-binding protein, alpha	GNAT1	N
transducing activity polypeptide, GNAT1	CIANTI	1 🛚
iransolucing activity polypeptide, GIVATT		

Guanine nucleotide-binding protein, alpha	GNAT2	N
transducing activity polypeptide, GNAT2 Guanine nucleotide-binding protein, beta	GNB3	N
polypeptide 3 Guanine nucleotide-binding protein, gamma polypeptide 5	GNG5	N
Guanine nucleotide-binding protein, q polypeptide	GNAQ	N
Guanylate cyclase 2D, membrane (retinaspecific)	GUCY2D	Ε
Guanylate cyclase activator 1A (retina) Guanylate kinase	GUCA1A	E
Guanylyl cyclase Gustducin, alpha (taste-specific G protein) Haeme regulated inhibitor kinase	GDCA	EZE
Haemoglobin alpha 1	HBA1	T
Haemoglobin alpha 2	HBA2	Ť
Haemoglobin beta	HBB	Ť
Haemoglobin delta	HBD	Ť
Haemoglobin gamma A	HBG1	Ť
Haemoglobin gamma B	HBG2	Ť
Haemoglobin gamma G	HBGG	Ť
Heat shock protein, HSP60	11500	i
Heat shock protein, HSP70		i
Heat shock protein, HSP90		i
Heat shock protein, HSPA1		i
Heat shock protein, HSPA2		i
Heparan sulfamidase		Ë
Heparin binding epidermal growth factor	HBEGF	G
Heparin Cofactor II	HCF2	Ī
Hepatic lipase	LIPC	Ė
Hexosaminidase A	HEXA,TSD	Ē
Hexosaminidase B	HEXB	Ε
Hippocampal cholinergic neurostimulating per		N
Histamine receptors, H1		N
Histamine receptors, H2		N
Histamine receptors, H3		N
Histidase		Ε
HLA-B associated transcript 1	BAT1	Ī
HLH transcription factor HAND1	HAND1	G
HLH transcription factor HAND2	HAND2	Ğ
HMG-CoA lyase	HMGCL	E
HMG-CoA reductase	HMGCR	E
Holocarboxylase synthetase	HLCS	Ε
Homeobox HB9	HLXB9	G
Human atonal gene	ATOH1	G
Hypoxanthine-guanine	HPRT	E
phosphoribosyltransferase, HGPRT		
•		

Hypoxia inducible factor 1 Hypoxia inducible factor 2	HIF1A	E E
IC7 A and B Inositol 1,4,5-triphosphate receptor 1	ITPR1	I G
Inositol monophosphatase	IMPA1	N
Inositol polyphosphate 1-phosphatase	INPP1	N
Insulin	INS	G
Insulin receptor	INSR	G
Insulin-like growth factor 1	IGF1	G
Insulin-like growth factor 1 receptor	IGF1R	G
Insulin-like growth factor 2	IGF2	Ğ
Insulin-like growth factor 2 receptor	IGF2R	Ğ
Integrin beta 1	ITGB1	Ğ
Integrin beta 2	ITGB2	Ğ
Integrin beta 3	ITGB3	G
Integrin, alpha 1	ITGA1	G
Integrin, alpha M	ITGAM	G
Inter-alpha-trypsin inhibitor, IATI		E
Interleukin(IL) 1 receptor	IL1R	1
Interleukin(IL) 1, alpha	IL1A	1
Interleukin(IL) 1, beta	IL1B	1
Interleukin(IL) 10	IL10	-
Interleukin(IL) 10 receptor	IL10R	1
Interleukin(IL) 11	IL11	- 1
Interleukin(IL) 11 receptor	IL11R	i
Interleukin(IL) 12	IL12	ı
Interleukin(IL) 12 receptor, beta 1	IL12RB1	İ
Interleukin(IL) 13	IL13	1
Interleukin(IL) 13 receptor	IL13R	l
Interleukin(IL) 2	IL2	l
Interleukin(IL) 2 receptor, alpha	IL2RA	1
Interleukin(IL) 2 receptor, gamma	IL2RG	l
Interleukin(IL) 3	IL3	!
Interleukin(IL) 3 receptor	IL3R	
Interleukin(IL) 4	IL4	
Interleukin(IL) 4 receptor	IL4R	- 1
Interleukin(IL) 5	IL5	ı.
Interleukin(IL) 5 receptor	IL5R	1
Interleukin(IL) 6	IL6	- !
Interleukin(IL) 6 receptor	IL6R	1
Interleukin(IL) 7	IL7 IL7R	- 1
Interleukin(IL) 7 receptor Interleukin(IL) 8	IL/K	1
, ,	IL8R	1
Interleukin(IL) 8 receptor Interleukin(IL) 9	ILOR IL9	1
Interleukin(IL) 9 receptor	IL9R	1.
Interleukin(IL) receptor antagonist 1	IL1RN, IL1RA	1
IP3 kinase	End, End	Ė
II O ARIOSC		_

Isovaleric acid CoA dehydrogenase Kallikrein 3 Kallman syndrome gene 1 Ketohexokinase Kininogen, High molecular weight Kynureninease L1 cell adhesion molecule Laminin 5, alpha 3 Laminin 5, beta 3 Laminin 5, gamma 2 Laminin M	IVD KAK3 KAL1 KHK KNG L1CAM LAMA3 LAMB3 LAMC2 LAMM	ш — Ө ш — ш z о о о о
Laminin receptor 1 Latent transforming growth factor-beta binding protein 2	LAMR1 LTBP2	G G
Leptin Leptin receptor Leukaemia inhibitory factor Leukaemia inhibitory factor receptor Leukin	LEP LEPR LIF LIFR	G G G G -
Leukocyte-specific transcript 1 Leukotriene A4 hydrolase	LST-1	! !
Leukotriene A4 synthase Leukotriene B4 receptor Leukotriene B4 synthase	LTA4S LTB4S	E i E
Leukotriene C4 receptor Leukotriene C4 synthase Leukotriene D4/E4 receptor	LTC4S	I E I
LIM homeobox protein 1 LIM homeobox protein 2 LIM homeobox protein 3 LIM homeobox protein 4	LHX1 LHX2 LHX3 LHX4	G G G
Limbic associated membrane protein LIM-domain only protein 2 LIM-domain only protein 3 LIM-domain only protein 4	LAMP LMO1 LMO2 LMO3 LMO4	G G G G
LIM-Kinase I (LINK-I) Lipoprotein receptor, Low Density Lipoprotein, High Density Lipoprotein, Intermediate Density Lipoprotein, Low Density 1	LDLR HDLDT1	 T T T
Lipoprotein, Low Density 2 Lipoprotein, Very Low Density Low density lipoprotein receptor-related protein precursor	VLDLR LRP	T T T
Lymphoid enhancer-binding factor MAD (mothers against decapentaplegic, Drosophila) homologue 4	LEF-1 MADH4	G G

Malonyl CoA decarboxylase Mannosidase, alpha B lysosomal Marenostrin Melatonin receptor 1A Melatonin receptor 1B Methylguanine-DNA methyltransferase Methylmalonyl-CoA mutase Mevalonate kinase Microsomal triglyceride transfer protein Microtuble associated protein Mismatch repair gene, PMSL2 Molybdenum cofactor synthesis 1 Molybdenum cofactor synthesis 2 Monoamine oxidase A Monoamine oxidase B Msh homeobox homolog 2 Mucolipidoses Muscarinic receptor, M1 Muscarinic receptor, M2 Muscarinic receptor, M4 Muscarinic receptor, M5 Myelin protein peripheral 22 Myelin protein zero Myogenic factor 3 Myogenic factor 4 Myogenic factor 5 Myosin 15 Myosin 6 Myosin 7A Myotubularin Na+, K+ ATPase, alpha Na+, K+ ATPase, beta 1 Na+, K+ ATPase, beta 3 N-acetylglucosamine-6-sulfatase	MANBA MEFV MTNR1A MTNR1B MGMT MUT MVK MTP MAP PMS2 MOCS1 MOCS2 MAOA MAOB MSX2 GNPTA CHRM1 CHRM2 CHRM3 CHRM4 CHRM5 PMP22 MPZ MYF3 MYF4 MYF5 MYO15 MYO6 MYO7A MTM1 ATP1B1 ATP1B1 ATP1B1 ATP1B3 GNS	шшш т z z шшшт м G шшшшш G ш z z z z z м м G G G м м м м G G G G ш
N-acetylglucosamine-6-sulfatase		Ε
N-acetylglucosaminidase, alpha	NAGLU	E
NADDH dependent outcohrome B450	DOD	E
NADPH-dependent cytochrome P450 reductase	POR	
NB6		1
Nebulin	NEB	S
Necdin	NDN	G
Nerve growth factor	NGF	G
Nerve growth factor receptor	NGFR	G
Neural retina-specific gene	NRL	G
Neuraminidase sialidase	NEU	Т

Neurite growth-promoting factor 2 Neurite inhibitory protein Neuroendocrine convertase 1 Neurofibromin 1 Neurofibromin 2 Neurofibromin 2 Neurofilament protein, heavy Neurofilament protein, NF125 Neurofilament protein, NF200 Neurofilament protein, NF200 NF200 Neurofilament protein, NF68 NF68 NF68 NF68 NF68 NF68 NF68 NF68	Neuregulin	HGL	G
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Nucleoside diphosphate kinase-A Oncogene bcl2 Oncogene GL11 Oncogene GL12 Oncogene GL12 Oncogene GL13 Oncogene GL13 Oncogene GL13 Oncogene sis Opioid receptor, delta Opioid receptor, kappa Opioid receptor, kappa Opioid receptor, mu Opioid receptor, mu Ornithine delta-aminotransferase Ornithine transcarbamoylase Orthodenticle (Drosophila) homolog 1 Orthodenticle (Drosophila) homolog 2 Otoferlin Oroferlin Opioid receptor, mu OPRM1 N Ornithine transcarbamoylase OTC, NME1 E Orthodenticle (Drosophila) homolog 1 OTX1 G Otoferlin OTOF N Paired box homeotic gene 2 PAX2 G Paired box homeotic gene 3 PAX3 G Palmitoyl-protein thioesterase	Notch ligand - jagged 1	JAG1, AGS	G
Nucleoside diphosphate kinase-A Oncogene bcl2 Oncogene GL11 Oncogene GL12 Oncogene GL12 Oncogene GL13 Oncogene GL13 Oncogene GL13 Oncogene sis Opioid receptor, delta Opioid receptor, kappa Opioid receptor, kappa Opioid receptor, mu Opioid receptor, mu Ornithine delta-aminotransferase Ornithine transcarbamoylase Orthodenticle (Drosophila) homolog 1 Orthodenticle (Drosophila) homolog 2 Otoferlin Oroff N Paired box homeotic gene 2 Pax2 G Palmitoyl-protein thioesterase ORLI GLI2 G GLI3 G G CHI3 G OPRD1 N OPRM1 N OPRM1 N OPRM1 N OTOF, NME1 E OTTX1 G OTTX2 G OTTX2 G OTTX2 G OTTX2 G OTTX2 G OTTX3 G PAX3 G PAX3 G PAX3 G PAX3 G PAX3 G PAX3 F PPT	• • • • • • • • • • • • • • • • • • • •	IKBL	1
Oncogene GLI1 GLI2 GLI2 G Oncogene GLI3 GLI3 GLI3 G Oncogene Sis PDGFB G Opioid receptor, delta OPRD1 N Opioid receptor, kappa OPRK1 N Opioid receptor, mu OPRM1 N Ornithine delta-aminotransferase OAT E Ornithine transcarbamoylase OTC, NME1 E Orthodenticle (Drosophila) homolog 1 OTX1 G Orthodenticle (Drosophila) homolog 2 OTX2 G Otoferlin OTOF N Paired box homeotic gene 2 PAX2 G Paired box homeotic gene 3 PAX3 G Palmitoyl-protein thioesterase PPT T	Nucleoside diphosphate kinase-A	NDPKA	Ε
Oncogene GL12 GL13 GL13 G Oncogene sis PDGFB G Opioid receptor, delta OPRD1 N Opioid receptor, kappa OPRK1 N Opioid receptor, mu OPRM1 N Ornithine delta-aminotransferase OAT E Ornithine transcarbamoylase OTC, NME1 E Orthodenticle (Drosophila) homolog 1 OTX1 G Orthodenticle (Drosophila) homolog 2 OTX2 G Otoferlin OTOF N Paired box homeotic gene 2 PAX2 G Paired box homeotic gene 3 PAX3 G Palmitoyl-protein thioesterase PPT T	Oncogene bcl2		G
Oncogene GLI3 Oncogene sis Oncogene sis Opioid receptor, delta Oproid receptor, kappa Oproid receptor, mu Opioid receptor, mu Oproid receptor, mu Ornithine delta-aminotransferase Ornithine transcarbamoylase Orthodenticle (Drosophila) homolog 1 Orthodenticle (Drosophila) homolog 2 Otoferlin Ortor Paired box homeotic gene 2 Paired box homeotic gene 3 Palmitoyl-protein thioesterase OPRD1 N OPRD1 N OPRM1 N OPRM1 N OTC, NME1 E OTX1 G OTX2 G OTX2 G OTX2 G OTX2 G OTX2 G OTX2 G OTX2 G OTX3 G PAX3 F PPT T	Oncogene GLI1	GLI	G
Oncogene GLI3 Oncogene sis Oncogene sis Opioid receptor, delta Oproid receptor, kappa Oproid receptor, mu Opioid receptor, mu Oproid receptor, mu Ornithine delta-aminotransferase Ornithine transcarbamoylase Orthodenticle (Drosophila) homolog 1 Orthodenticle (Drosophila) homolog 2 Otoferlin Ortor Paired box homeotic gene 2 Paired box homeotic gene 3 Palmitoyl-protein thioesterase OPRD1 N OPRD1 N OPRM1 N OPRM1 N OTC, NME1 E OTX1 G OTX2 G OTX2 G OTX2 G OTX2 G OTX2 G OTX2 G OTX2 G OTX3 G PAX3 F PPT T	Oncogene GLI2	GLI2	G
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Opioid receptor, delta Opioid receptor, kappa Opioid receptor, mu Opioid receptor, mu Opioid receptor, mu Oprithine delta-aminotransferase Ornithine transcarbamoylase Orthodenticle (Drosophila) homolog 1 Orthodenticle (Drosophila) homolog 2 Otoferlin Ortof Paired box homeotic gene 2 Pax2 Palmitoyl-protein thioesterase OPRM1 N OPRM1 N OPRM1 N OTOR OTC, NME1 E OTX1 G OTX2 G OTX2 G OTX2 G OTX2 G OTX2 G OTX2 G OTX2 G OTX3 G PAX3 G PAX3 G PAX3 G PAX3 T	· ·	PDGFB	G
Opioid receptor, mu Ornithine delta-aminotransferase Ornithine transcarbamoylase Orthodenticle (Drosophila) homolog 1 Orthodenticle (Drosophila) homolog 2 Otoferlin Ortof Paired box homeotic gene 2 Paired box homeotic gene 3 Palmitoyl-protein thioesterase OPRM1 N OTT OTT OTT N PAX2 G PAX3 G PAX3 G PAX3 T	Opioid receptor, delta	OPRD1	Ν
Ornithine delta-aminotransferase Ornithine transcarbamoylase Orthodenticle (Drosophila) homolog 1 Orthodenticle (Drosophila) homolog 2 Otoferlin Ortof Paired box homeotic gene 2 Paired box homeotic gene 3 Palmitoyl-protein thioesterase OAT E OTC, NME1 E OTX1 G OTX2 G OTX2 G PAX2 G PAX3 G PAX3 G PAX3 T	·	OPRK1	Ν
Ornithine transcarbamoylase Orthodenticle (Drosophila) homolog 1 Orthodenticle (Drosophila) homolog 2 Otoferlin Ortoferlin Ortof Paired box homeotic gene 2 Paired box homeotic gene 3 Palmitoyl-protein thioesterase OTC, NME1 E OTX1 G OTX1 G OTX2 G PAX2 G PAX3 G PAX3 T	Opioid receptor, mu	OPRM1	N
Orthodenticle (Drosophila) homolog 1 OTX1 G Orthodenticle (Drosophila) homolog 2 OTX2 G Otoferlin OTOF N Paired box homeotic gene 2 PAX2 G Paired box homeotic gene 3 PAX3 G Palmitoyl-protein thioesterase PPT T	Ornithine delta-aminotransferase	OAT	Ε
Orthodenticle (Drosophila) homolog 2 OTX2 G Otoferlin OTOF N Paired box homeotic gene 2 PAX2 G Paired box homeotic gene 3 PAX3 G Palmitoyl-protein thioesterase PPT T	Ornithine transcarbamoylase	OTC, NME1	E
Otoferlin OTOF N Paired box homeotic gene 2 PAX2 G Paired box homeotic gene 3 PAX3 G Palmitoyl-protein thioesterase PPT T	Orthodenticle (Drosophila) homolog 1	OTX1	G
Paired box homeotic gene 2PAX2GPaired box homeotic gene 3PAX3GPalmitoyl-protein thioesterasePPTT	Orthodenticle (Drosophila) homolog 2	OTX2	G
Paired box homeotic gene 3 PAX3 G Palmitoyl-protein thioesterase PPT T	Otoferlin	OTOF	N
Paired box homeotic gene 3 PAX3 G Palmitoyl-protein thioesterase PPT T	Paired box homeotic gene 2	PAX2	G
Palmitoyl-protein thioesterase PPT T		PAX3	G
Parkin PARK2 N	•	PPT	Т
	Parkin	PARK2	Ν

Patched (Drosophila) homolog, PTCH Peanut-like 1 Peptidylglycine alpha-amidating monooxygenase	PTCH PNUTL1 PAM	G I E
Peripherin, PRPH	•	S
Peroxisomal membrane protein 1	PXMP1	S
Peroxisomal membrane protein 3	PXMP3	Т
Peroxisome biogenesis factor 1	PEX1	Т
Peroxisome biogenesis factor 19	PEX19	Т
Peroxisome biogenesis factor 6	PEX6	Т
Peroxisome biogenesis factor 7	PEX7	Т
Peroxisome receptor 1	PXR1	Т
Persyn		S
Phosphate regulating gene with homologies	PHEX	G
to endopeptidases on the X chromosome		
Phosphatidylinositol transfer protein	PITPN	G
Phosphoglucose isomerase	GPI	E
Phosphoglycerate kinase 1	PGK1	Ε
Phospholipase A2, group 10	PLA2G10	1
Phospholipase A2, group 1B	PLA2G1B	1
Phospholipase A2, group 2A	PLA2G2A	i
Phospholipase A2, group 2B	PLA2G2B	1
Phospholipase A2, group 4A	PLA2G4A	1
Phospholipase A2, group 4C	PLA2G4C	1
Phospholipase A2, group 5	PLA2G5	1
Phospholipase A2, group 6	PLA2G6	1
Phospholipase C alpha		1
Phospholipase C beta		l
Phospholipase C delta	PLCD1	1
Phospholipase C epsilon		1
Phospholipase C gamma	PLCG1	1
Phosphomannomutase 2	PMM2	G
Phosphoribosyl pyrophosphate synthetase	PRPS1	E
Phytanoyl-CoA hydroxylase	PHYH	G
Plakophilin 1	PKP1	Т
Plasminogen	PLG	E
Plasminogen activator inhibitor 1	PAI1	Ε
Plasminogen activator inhibitor 2	PAI2	E E
Plasminogen activator receptor, Urokinase	UPAR; PLAUR	S
Plasminogen activator, Tissue	PLAT; TPA	E
Plasminogen activator, Urokinase	UPA; PLAU	E
Platelet derived growth factor	PDGF	G
Platelet derived growth factor receptor	PDGFR	G
Platelet-activating factor receptor	PAFR	1
Plectin 1	PLEC1	Т
Postsynaptic density-95 protein	PSD95	N
Potassium channel, calcium-activated,	KCNN4	N
Potassium channel, subfamily K, member 1	KCNK1	N

Potassium channel, subfamily K, member 2 Potassium channel, subfamily K, member 3 Potassium inwardly-rectifying channel J1 Potassium voltage-gated channel A1 Potassium voltage-gated channel E1 Potassium voltage-gated channel Q1 Potassium voltage-gated channel Q2 Potassium voltage-gated channel Q3 Potassium voltage-gated channel Q4 POU domain, class 1, transcription factor 1 (Pit1)	KCNK2 KCNK3 KCNJ1 KCNA1 KCNE1 KCNQ1 KCNQ2 KCNQ3 KCNQ4 POU1F1	22222220
POU domain, class 3, transcription factor 4	POU3F4	G
POU domain, class 4, transcription factor 3	POU4F3	G
Prekallikrein		1
Preproenkephalin	PENK	Ν
Presenilin 1	PSEN1	Т
Presenilin 2	PSEN2	T
Prion protein	PRNP	Ν
Procollagen N-protease	22221	E
Proline dehydrogenase	PRODH	E
Pro-melanin-concentrating hormone	PMCH	G
Proopiomelanocortin	POMC	N
Prosaposin	PSAP	N
Prostacyclin synthase	HGPD; PGDH	1
Prostaglandin 15-OH dehydrogenase Prostaglandin D - DP receptor	HGFB, FGBH	1
Prostaglandin E1 receptor	•	i
Prostaglandin E2 receptor		i
Prostaglandin E3 receptor		i
Prostaglandin F - FP receptor		i
Prostaglandin I2 receptor		Ť
Prostaglandin IP receptor		i
Protease nexin 2	PN2	E
Protective protein for beta-galactosidase	PPGB	Ε
Protein C	PROC	1
Protein C inhibitor	PCI	I
Protein kinase C, alpha	PRKCA	E
Protein kinase C, gamma	PRKCG	Ε
Protein kinase G		E
Protein phosphatase 1, regulatory (inhibitor)	PPP1R3	Ε
subunit 3		
Protein S	PROS1	- 1
Prothrombin precursor	F2	1
Purine nucleoside phosphorylase	NP	E
Pyrroline-5-carboxylate synthetase	PYCS	E
Pyruvate carboxylase	PC	E
Pyruvate decarboxylase	PDHA	E
Ras-G-protein	RAS	G

Replication factor C RFC2 E Retinal pigment epithelium specific protein RPE65 S (65kD) Retinal pigment epithelium specific protein RPE65 S (65kD) REdinal pigment epithelium specific protein RBD1 T Retinaldehyde binding protein 1 RBD1 RBD1 RHOK E RHOK E RHOK E RHOK E RBD1 RBD1 T R S100 calcium-binding protein A2 S100A2 N S100A5 N S100 calcium-binding protein A3 S100A3 N S100A7 N S100 calcium-binding protein A4 S100A8 N S100A9 N S100 calcium-binding protein A3 S100A9 N <t< th=""><th>Rathke pouch homeobox, RPX Renin</th><th>RPX REN</th><th>G E</th></t<>	Rathke pouch homeobox, RPX Renin	RPX REN	G E
Retinal pigment epithelium specific protein (65kD). Retinaldehyde binding protein 1 RLBP1 TRetinoblastoma 1 RBB1 GRHOK ERIGUI RIGUI GS S100 Calcium-binding protein A1 S100A1 N S100 Calcium-binding protein A2 S100A2 N S100 Calcium-binding protein A3 S100A3 N S100 Calcium-binding protein A4 S100A4 N S100 Calcium-binding protein A5 S100A5 N S100 Calcium-binding protein A5 S100A5 N S100 Calcium-binding protein A6 S100A6 N S100 Calcium-binding protein A7 S100A7 N S100 Calcium-binding protein A7 S100A7 N S100 Calcium-binding protein A8 S100A8 N S100 Calcium-binding protein A8 S100A8 N S100 Calcium-binding protein A8 S100A8 N S100 Calcium-binding protein B S100A9 N S100 Calcium-binding protein B S100A9 N S100 Calcium-binding protein B S100B N S100 Calcium-binding protein B S100B N S100 Calcium-binding protein B S100B N S100 Calcium-binding protein B S100B N S100 Calcium-binding protein B S100B N S100 Calcium-binding protein B S100B N S100 Calcium-binding protein B S100B N S100 Calcium-binding protein B S100B N S100 Calcium-binding protein B S100B N S100 Calcium-binding protein B S100B N S100 Calcium-binding protein B S100B N S100 Calcium-binding protein B S100B N S100 Calcium-binding protein B S100B N S100 Calcium-binding protein B S100B N S100B N S200B N S200B N S200B N S200B N S200B N S200B N S200B N S200B N S200B N S200B N S200B N S200B N S200B N S200B N S200B N S200B N S20B N N S20B N N S20B N N S20B N N S20B N N S20B N N S20B N N S20B N N N S20B N N N S20B N N N S20B N N N S20B N N N S20B N N N N S20B N N N N N N N N N N N N N N N N N N N	Replication factor C	RFC2	Ε
Retinaldehyde binding protein 1 RLBP1 T Retinoblastoma 1 RB1 G Rhodopsin kinase RHOK E RIGUI RIGUI G S100 calcium-binding protein A1 S100A1 N S100 calcium-binding protein A2 S100A2 N S100 calcium-binding protein A3 S100A3 N S100 calcium-binding protein A4 S100A4 N S100 calcium-binding protein A5 S100A5 N S100 calcium-binding protein A6 S100A6 N S100 calcium-binding protein A7 S100A7 N S100 calcium-binding protein A8 S100A8 N S100 calcium-binding protein B S100A9 N S100 calcium-binding protein P S100P N Secretase, beta S100P N Secretase, beta S100P N Secretase, beta SEL N Selectin E SEL N Selectin P SEL N Semaphorin A4 SEMA5 S	Retinal pigment epithelium specific protein	RPE65	
Retinoblastoma 1 RB1 G Rhodopsin kinase RHOK E RIGUI RIGUI G \$100 calcium-binding protein A1 \$100A1 N \$100 calcium-binding protein A2 \$100A2 N \$100 calcium-binding protein A3 \$100A3 N \$100 calcium-binding protein A4 \$100A4 N \$100 calcium-binding protein A5 \$100A6 N \$100 calcium-binding protein A6 \$100A6 N \$100 calcium-binding protein A7 \$100A7 N \$100 calcium-binding protein A8 \$100A8 N \$100 calcium-binding protein B \$100A9 N \$100 calcium-binding protein B \$100A9 N \$100 calcium-binding protein B \$100B N \$100 calcium-binding protein B \$100P N \$100 calcium-binding protein B \$100B N	•	DI DD1	т
Rhodopsin kinase	•		
RIGUI			
S100 calcium-binding protein A1 S100A1 N S100 calcium-binding protein A2 S100A2 N S100 calcium-binding protein A3 S100A3 N S100 calcium-binding protein A4 S100A4 N S100 calcium-binding protein A5 S100A5 N S100 calcium-binding protein A6 S100A6 N S100 calcium-binding protein A7 S100A7 N S100 calcium-binding protein A8 S100A8 N S100 calcium-binding protein A9 S100A8 N S100 calcium-binding protein B S100A9 N S100 calcium-binding protein P S100A8 N S100 calcium-binding protein A9 S100A9 N S100 calcium-binding protein A9 S100A9 N S100 calcium-binding protein A9 S100A9 N S100 calcium-binding protein A9	· · · · · · · · · · · · · · · · · · ·		
S100 calcium-binding protein A2 S100A2 N S100 calcium-binding protein A3 S100A3 N S100 calcium-binding protein A4 S100A4 N S100 calcium-binding protein A5 S100A5 N S100 calcium-binding protein A6 S100A6 N S100 calcium-binding protein A8 S100A8 N S100 calcium-binding protein A8 S100A9 N S100 calcium-binding protein B S100A9 N S100 calcium-binding protein B S100A9 N S100 calcium-binding protein P S100P N Secretase, alpha N Secretase, alpha N Secretase, beta SELE N Serectase, gamma N SELE N Selectin E SELE N Selectin P SELP N Semaphorin A4 SEMA4 S Semaphorin A5 SEMA5 S Semaphorin F SEMAE S Semaphorin W SEMAW S Serotonin receptor, 5HT1A H			
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S100 calcium-binding protein A4 \$100A4 N \$100 calcium-binding protein A5 \$100A5 N \$100 calcium-binding protein A6 \$100A6 N \$100 calcium-binding protein A7 \$100A7 N \$100 calcium-binding protein A8 \$100A8 N \$100 calcium-binding protein A9 \$100A9 N \$100 calcium-binding protein B \$100B N \$100 calcium-binding protein P \$100P N \$100 calcium-binding protein P \$100P N \$100 calcium-binding protein P \$100P N \$100 calcium-binding protein B \$100B N \$100 calcium-binding protein B \$100A9 N \$100 calcium-binding protein B \$100A9 N \$100 calcium-binding protein A9 \$100P N \$100 calcium-binding protein A9 \$100P N \$100 calcium-binding protein A9	- ·		
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S100 calcium-binding protein A9 S100A9 N S100 calcium-binding protein B S100B N S100 calcium-binding protein P S100P N Secretase, alpha N N Secretase, deta N N Secretase, gamma N N Selectin E SELE N Selectin L SELL N Selectin P SELP N Semaphorin A4 SEMA4 S Semaphorin A5 SEMA5 S Semaphorin E SEMAE S Semaphorin W SEMAW S Serotonin N-acetyltransferase SNAT E Serotonin receptor, 5HT1A HTR1A N Serotonin receptor, 5HT1B HTR1B N Serotonin receptor, 5HT1C HTR1C N Serotonin receptor, 5HT1E HTR1E N Serotonin receptor, 5HT2A HTR2A N Serotonin receptor, 5HT2C HTR2B N Serotonin receptor, 5HT3 HTR3 <	- •		
S100 calcium-binding protein B S100 calcium-binding protein P S100P N Secretase, alpha Secretase, beta Secretase, gamma Selectin E Selectin L Selectin P Selectin P Semaphorin A4 Semaphorin A5 Semaphorin B Semaphorin E Semaphorin E Semaphorin F Semaphorin W Serotonin N-acetyltransferase SNAT Serotonin receptor, 5HT1A HTR1A N Serotonin receptor, 5HT1C HTR1C Serotonin receptor, 5HT1E Serotonin receptor, 5HT2A Serotonin receptor, 5HT2A Serotonin receptor, 5HT3 Serotonin receptor, 5HT3 Serotonin receptor, 5HT4 Serotonin receptor, 5HT5 Serotonin receptor, 5HT6 HTR1C N Serotonin receptor, 5HT6 HTR1C N Serotonin receptor, 5HT3 Serotonin receptor, 5HT4 N Serotonin receptor, 5HT5 N Serotonin receptor, 5HT6 HTR1A N Serotonin receptor, 5HT6 HTR1A N Serotonin receptor, 5HT7 HTR5 N Serotonin receptor, 5HT6 HTR6 N Serotonin receptor, 5HT6 HTR6 N Serotonin receptor, 5HT7	- •		
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Semaphorin W Serotonin N-acetyltransferase Serotonin receptor, 5HT1A Serotonin receptor, 5HT1B Serotonin receptor, 5HT1C Serotonin receptor, 5HT1D Serotonin receptor, 5HT1D Serotonin receptor, 5HT1E Serotonin receptor, 5HT1F Serotonin receptor, 5HT1F Serotonin receptor, 5HT2A Serotonin receptor, 5HT2B Serotonin receptor, 5HT2B Serotonin receptor, 5HT2C Serotonin receptor, 5HT3 Serotonin receptor, 5HT4 Serotonin receptor, 5HT4 Serotonin receptor, 5HT5 Serotonin receptor, 5HT5 N Serotonin receptor, 5HT6 Serotonin receptor, 5HT6 N Serotonin receptor, 5HT7 N	Semaphorin E		
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Serotonin receptor, 5HT1B Serotonin receptor, 5HT1C Serotonin receptor, 5HT1D HTR1D N Serotonin receptor, 5HT1E HTR1E N Serotonin receptor, 5HT1F HTR1F Serotonin receptor, 5HT2A Serotonin receptor, 5HT2B Serotonin receptor, 5HT2B Serotonin receptor, 5HT2C Serotonin receptor, 5HT3 Serotonin receptor, 5HT4 Serotonin receptor, 5HT5 HTR3 N Serotonin receptor, 5HT5 N Serotonin receptor, 5HT5 N Serotonin receptor, 5HT6 N Serotonin receptor, 5HT7	Serotonin N-acetyltransferase	SNAT	Ε
Serotonin receptor, 5HT1C HTR1C N Serotonin receptor, 5HT1D HTR1D N Serotonin receptor, 5HT1E HTR1E N Serotonin receptor, 5HT1F HTR1F N Serotonin receptor, 5HT2A HTR2A N Serotonin receptor, 5HT2B HTR2B N Serotonin receptor, 5HT2C HTR2C N Serotonin receptor, 5HT3 HTR3 N Serotonin receptor, 5HT4 HTR4 N Serotonin receptor, 5HT5 HTR5 N Serotonin receptor, 5HT6 HTR6 N Serotonin receptor, 5HT7 N	Serotonin receptor, 5HT1A	HTR1A	Ν
Serotonin receptor, 5HT1D HTR1D N Serotonin receptor, 5HT1E HTR1E N Serotonin receptor, 5HT1F HTR1F N Serotonin receptor, 5HT2A HTR2A N Serotonin receptor, 5HT2B HTR2B N Serotonin receptor, 5HT2C HTR2C N Serotonin receptor, 5HT3 HTR3 N Serotonin receptor, 5HT4 HTR4 N Serotonin receptor, 5HT5 HTR5 N Serotonin receptor, 5HT6 HTR6 N Serotonin receptor, 5HT7 N	Serotonin receptor, 5HT1B	HTR1B	Ν
Serotonin receptor, 5HT1E HTR1E N Serotonin receptor, 5HT1F HTR1F N Serotonin receptor, 5HT2A HTR2A N Serotonin receptor, 5HT2B HTR2B N Serotonin receptor, 5HT2C HTR2C N Serotonin receptor, 5HT3 HTR3 N Serotonin receptor, 5HT4 HTR4 N Serotonin receptor, 5HT5 HTR5 N Serotonin receptor, 5HT6 HTR6 N Serotonin receptor, 5HT7 N	Serotonin receptor, 5HT1C	HTR1C	Ν
Serotonin receptor, 5HT1F HTR1F N Serotonin receptor, 5HT2A HTR2A N Serotonin receptor, 5HT2B HTR2B N Serotonin receptor, 5HT2C HTR2C N Serotonin receptor, 5HT3 HTR3 N Serotonin receptor, 5HT4 HTR4 N Serotonin receptor, 5HT5 HTR5 N Serotonin receptor, 5HT6 HTR6 N Serotonin receptor, 5HT7 N	Serotonin receptor, 5HT1D	HTR1D	Ν
Serotonin receptor, 5HT2A HTR2A N Serotonin receptor, 5HT2B HTR2B N Serotonin receptor, 5HT2C HTR2C N Serotonin receptor, 5HT3 HTR3 N Serotonin receptor, 5HT4 HTR4 N Serotonin receptor, 5HT5 HTR5 N Serotonin receptor, 5HT6 HTR6 N Serotonin receptor, 5HT7 N	Serotonin receptor, 5HT1E	HTR1E	Ν
Serotonin receptor, 5HT2B HTR2B N Serotonin receptor, 5HT2C HTR2C N Serotonin receptor, 5HT3 HTR3 N Serotonin receptor, 5HT4 HTR4 N Serotonin receptor, 5HT5 HTR5 N Serotonin receptor, 5HT6 HTR6 N Serotonin receptor, 5HT7 N	Serotonin receptor, 5HT1F	HTR1F	Ν
Serotonin receptor, 5HT2C HTR2C N Serotonin receptor, 5HT3 HTR3 N Serotonin receptor, 5HT4 HTR4 N Serotonin receptor, 5HT5 HTR5 N Serotonin receptor, 5HT6 HTR6 N Serotonin receptor, 5HT7 HTR7 N	Serotonin receptor, 5HT2A	HTR2A	Ν
Serotonin receptor, 5HT3 HTR3 N Serotonin receptor, 5HT4 HTR4 N Serotonin receptor, 5HT5 HTR5 N Serotonin receptor, 5HT6 HTR6 N Serotonin receptor, 5HT7 HTR7 N	Serotonin receptor, 5HT2B	HTR2B	Ν
Serotonin receptor, 5HT4 HTR4 N Serotonin receptor, 5HT5 HTR5 N Serotonin receptor, 5HT6 HTR6 N Serotonin receptor, 5HT7 HTR7 N	Serotonin receptor, 5HT2C	HTR2C	Ν
Serotonin receptor, 5HT5 HTR5 N Serotonin receptor, 5HT6 HTR6 N Serotonin receptor, 5HT7 HTR7 N	Serotonin receptor, 5HT3	HTR3	Ν
Serotonin receptor, 5HT6 HTR6 N Serotonin receptor, 5HT7 HTR7 N	Serotonin receptor, 5HT4	HTR4	Ν
Serotonin receptor, 5HT6 HTR6 N Serotonin receptor, 5HT7 HTR7 N	Serotonin receptor, 5HT5	HTR5	Ν
Serotonin receptor, 5HT7 HTR7 N	Serotonin receptor, 5HT6	HTR6	Ν
·	•	HTR7	Ν
	Signaling lymphocyte activation molecule	SLAM	1

Slug protein	CNDDN	G
Small nuclear ribonucleoprotein polypeptide N	SNRPN	S
Sodium channel, non-voltage gated 1, alpha	SCNN1A	Ν
Sodium channel, non-voltage gated 1, beta	SCNN1B	Ν
Sodium channel, non-voltage gated 1,	SCNN1G	Ν
gamma		•
Sodium channel, voltage gated, type IV,	SCN4A	Ν
alpha polypeptide		
Sodium channel, voltage-gated, type 1, beta	SCN1B	Ν
polypeptide		
Solute carrier family 1 (amino acid	SLC1A6	T
transporter), member 6		
Solute carrier family 1 (glial high affinity	SLC1A3	Т
glutamate transporter), member 3	0.04.4	
Solute carrier family 1 (glutamate	SLC1A1	Т
transporter), member 1	01.0440	-
Solute carrier family 1 (glutamate	SLC1A2	T
transporter), member 2 Solute carrier family 12, member 1	SLC12A1	_
Solute carrier family 12, member 2	SLC12A1	T T
Solute carrier family 12, member 3	SLC12A3	Ť
Solute carrier family 16 (monocarboxylate	SLC16A1	Ť
transporter), member 1	SECTOAT	•
Solute carrier family 16 (monocarboxylate	SLC16A7	Т
transporter), member 7		•
Solute carrier family 18, member 3	SLC18A3	T
Solute carrier family 2 (facilitated glucose	SLC2A1	Т
transporter), member 1		
Solute carrier family 20, member 3	SLC20A3	T
Solute carrier family 25, member 12	SLC25A12	T
Solute carrier family 4 (anion exchanger),	SLC4A1	T
member 1		
Solute carrier family 4 (anion exchanger),	SLC4A2	Т
member 2		
Solute carrier family 4 (anion exchanger),	SLC4A3	Т
member 3		
Solute carrier family 5 (sodium/glucose	SLC5A1	T
transporter), member 1	0.05.0	_
Solute carrier family 5 (sodium/glucose	SLC5A2	T
transporter), member 2	01.0545	
Solute carrier family 5 (sodium/glucose	SLC5A5	T
transporter), member 5	CLOFAC	~
Solute carrier family 5, member 3	SLC5A3	T
Solute carrier family 6 (GAMMA-	SLC6A1	Τ
AMINOBUTYRIC ACID transporter), member		
1 Solute carrier family 6 (neurotransmitter	SLC6A3	_
Solute carrier family 6 (neurotransmitter	SECOMS	Т

transporter depomine) member ?		
transporter, dopamine), member 3 Solute carrier family 6 (neurotransmitter	SLC6A2	Т
· ·	SLCOAZ	'
transporter, noradrenaline), member 2	SLC6A4	т
Solute carrier family 6 (neurotransmitter	3LC0A4	Т
transporter, serotonin), member 4	SLOSAS	_
Solute carrier family 6, member 6	SLC6A6	Ţ
Solute carrier family 7(amino acid	SLC7A1	T
transporter), member 1	SLC7A2	_
Solute carrier family 7(amino acid	SLC/AZ	Т
transporter), member 2	SLC7A7	_
Solute carrier family 7(amino acid	SLOTAT	T
transporter), member 7 Somatostatin	SST	N.1
	SSTR1	N
Somatostatin receptor, SSTR1		Ν
Somatostatin receptor, SSTR2	SSTR2	G
Somatostatin receptor, SSTR3	SSTR3	Ν
Somatostatin receptor, SSTR4	SSTR4	N
Somatostatin receptor, SSTR5	SSTR5	N
Spastic paraplegia 7	SPG7	G
Spectrin beta	SPTB	S
Sphingomyelinase	SMPD1	E
Spinocerebellar ataxia 8 gene	SCA8	N
SRY-box 11	SOX11	G
Steroid 5 alpha reductase 1	SRD5A1	E
Steroid 5 alpha reductase 2	SRD5A2	E
Steroid sulphatase	STS	Ε
Substance P	db	N
Succinic semi-aldehyde dehydrogenase	ssadh	E
Sulfamidase	SGSH	G
Sulfite oxidase	SUOX	Ε
Superoxide dismutase 1	SOD1	E
Superoxide dismutase 3	SOD3	E
Surfeit 1	SURF1	G
Survival of motor neuron 1, telomeric	SMN1	T
Synapsin 1a & 1b	SYN1	N
Synapsin 2a & 2b	SYN2	N
Synaptic vesicle amine transporter	SVAT	N
Synaptic vesicle protein 2	SV2	N
Synaptobrevia 2	SYB1	N
Synaptobrevin 2	SYB2	N
Synaptogyrin	CVD	N
Synaptophysin	SYP	N
Synaptosomal-associated protein, 25KD	SNAP25	N
Synaptotagmin 1	SYT1	N
Synaptotagmin 2	SYT2	N
Syntaxin 1	STX1	N
Tachykinin receptor, NK1R	TACR1	N
Tachykinin receptor, NK2R	TACR2	Ν

Tachykinin receptor, NK3R	TACR3	N
Talin	TLN	G
Tau protein	MAPT	S
TEK, tyrosine kinase, endothelial	TEK	
Telomerase protein component		EEE
Thiolase, perioxisomal		E
Thrombin receptor	F2R	Ī
Thrombopoietin	THPO	Ġ
Thromboxane A synthase 1	TBXAS1	ı
Thromboxane A2	TXA2	i
Thromboxane A2 receptor	TBXA2R	i
Thy-1 T-cell antigen	THY1	i
Thyroxin-binding globulin	TBG	Ť
Tocopherol (alpha) transfer protein	TTPA	Ť
Topoisomerase I		Ė
Torticollis, keloids, cryptorchidism and renal	TKCR	G
dysplasia gene		
Transacylase		Ε
Transferrin receptor	TFRC	G
Transforming growth factor, beta 2	TGFB2	G
Transforming growth factor, beta induced	TGFBI	G
Transforming growth factor, beta receptor 2	TGFBR2	G
Transketolase-like 1	TKTL1	Ε
Transthyretin	TTR	Т
Tremor, essential 1	ETM1	Ν
Tremor, essential 2	ETM2	Ν
Triosephosphate isomerase	TPI1	Ε
Tropomyosin 3 (non-muscle)	TPM3	S
Tryptophan hydroxylase	TPH	E
Tubby-like protein 1	TULP1	G
Tuberous sclerosis 1	TSC1	G
Tuberous sclerosis 2	TSC2	G
Tumour necrosis factor (TNF) receptor	TRAF1	1
associated factor 1		
Tumour necrosis factor (TNF) receptor	TRAF2	1
associated factor 2		
Tumour necrosis factor (TNF) receptor	TRAF3	ļ
associated factor 3		
Tumour necrosis factor (TNF) receptor	TRAF4	1
associated factor 4		
Tumour necrosis factor (TNF) receptor	TRAF5	1
associated factor 5		
Tumour necrosis factor (TNF) receptor	TRAF6	١
associated factor 6		
Tumour necrosis factor alpha	TNFA	1
Tumour necrosis factor alpha receptor	TNFAR	ı
Tumour necrosis factor beta	TNFB	I
Tumour necrosis factor beta receptor	TNFBR	1

Tumour protein p53	TP53, P53	G
Tumour protein p73	TP73	G
Tyrosine aminotransferase	TAT	Ε
Tyrosine hydroxylase	TH	Ε
Ubiquitin		G
Ubiquitin B	UBB	G
Ubiquitin C	UBC	G
Ubiquitin carboxyl-terminal esterase L1	UCHL1	G
UDP-glucuronosyltransferase 1	ugt1d, UGT1	Ε
UDP-glucuronosyltransferase 2	UGT2	Ε
Urate oxidase	UOX	E
Uridinediphosphate(UDP)-galactose-4-	GALE	Ε
epimerase		
Uroporphyrinogen III synthase	UROS	Ε
Usher syndrome 2A	USH2A	S
Vacuolar proton pump, subunit 1	VPP1	Ν
Vacuolar proton pump, subunit 3	VPP3	Ν
Vasoactive intestinal polypeptide	VIP	Ν
Vasoactive intestinal polypeptide receptor	VIPR	Ν
Vesicular monoamine transporter 1	VMAT1	Ν
Vesicular monoamine transporter 2	VMAT2	Ν
Vitamin B12-binding (R) protein		G
Von Hippel-Lindau gene	VHL	G
Wolf-Hirschhorn syndrome candidate 1 gene	WHSC1	G
Wolfram syndrome 1 gene	WFS1	S
Xanthine dehydrogenase	XDH	Ε
Xeroderma pigmentosum, complementation group A	XPA	Ε
Zinc finger protein 2	ZIC2	S
g protoni =		0

- A set of probes, said probes being antibodies or antibody fragments which interact with specific expressed proteins encoded by gene sequences of a group of genes, said probes being for detecting relevant variants (mutations and polymorphisms), e.g. nucleotide substitutions (missense, nonsense, splicing and regulatory), small deletions, small insertions, small insertion deletions, gross insertions, gross deletions, duplications, complex rearrangements and repeat variations in a target group of genes; characterised in that said group is a core group of genes consisting of substantially all of the genes defined in claim 70.
- 72. A set according to claim 70 or 71 in which a minority of said probes for listed genes are absent.
- 73. A set according to claim 70 or 71 in which a limited number of additional probes are present together with substantially all of the probes for the listed genes.
- 74. A set according to claim 70 or 71 in which a limited number of probes are replaced by probes for non-listed genes.

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A set of probes for a core group of genes according to any of claims 70 to 74 75. in which each gene to be probed is substantially similar (greater than 85% homologous) in sequence to the respective member of the core list of genes.

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- A set according to any of claims 70 to 75 consisting of probes for members of 76. a sub-group of the core group.
- 77. A set according to any preceding claim in which said probes are in the form of an array and are spatially arranged at known locations on a substrate.
- A set according to any preceding claim wherein said probes are on a substrate 78. which forms part of or consists of one or more chip plate(s), for use in a chip assay for detection of said gene variants.
- A set according to any preceding claim in which said probes are mass, 79. clectrostatic or fluorescence tagged probes.
- A set according to claim 77 or 78 in which said substrate is a semiconductor 80. microchip.
- 81. A set according to any preceding claim for use in a biological assay for detection of said gene variants.
- 82. A set according to any preceding claim for use in the measurement of differential gene expression levels.
- A medical device including a set according to any preceding claim for use in 83. an assay for detection of said gene variants.
- 84. A medical device including a set according to any of claims 70 to 82 for use in an array for detection of differential gene expression levels.
- 85. A method for use in assessing the genomic profile of a patient or individual. the method comprising testing for and detecting the presence or absence of DNA or RNA encoding the relevant structural variants (as defined in claim 70) in a target group of genes by hybridising a nucleic acid-containing sample from said patient or individual to a set according to any of claims 70 and 72 to 82 and relating the probe hybridisation pattern to said variations.
- A method for use in assessing the the genomic profile of a patient or 86. individual, the method comprising testing for and detecting the presence or absence of DNA or RNA encoding the relevant structural variants (as defined in claim 71) in a target group of genes by interacting an expressed-proteincontaining sample from said patient or individual with a set of probes according to any of claims 71 to 82 and relating the probe interaction pattern to said variations.
- 87. Use of a set or device according to any of claims 70 to 82 for the prognosis and management of patients suffering from or at risk of CNS dysfunction, damage or disease or experiencing the symptoms and consequences of CNS dysfunction, damage or disease.
- 88. Use of a set or device according to any of claims 70 to 82 for predicting likely therapeutic response and adverse events following therapeutic intervention.
- 89. Use of a set or device according to any of claims 70 to 82 for predicting likely therapeutic response and adverse events following the intake of a specific
- 90. Use of a set or device according to any of claims 70 to 82 for predicting likely patterns of symptom clusters (symptom profiles) in disease and the likelihood of subsequent, contingent, disease or symptoms.

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- 91. Use of a set or device according to any of claims 70 to 82 for general health screening, occupational health purposes, healthcare planning on a population basis and other healthcare management utilisations.
- Use of a set or device according to any of claims 70 to 82 for the development 92. of new strategies of therapeutic intervention and in clinical trials.
- 93. Use of a set or device according to any of claims 70 to 82 for construction of and generation of algorithms for patient and healthcare management.
- 94. Use of a set or device according to any of claims 70 to 82 for modelling or assessing the impact of diseases or healthcare management strategies on individuals, groups, patient cohorts or populations
- 95. Use of a set or device according to any of claims 70 to 82 for modelling. assessing or exploring the theoretical impact of diseases and healthcare management strategies on individuals, groups, patient cohorts or populations.
- 96. Use of a set or device according to any of claims 70 to 82 for predicting optimum configuration/management of thereapeutic intervention.
- 97. A method according to claim 85 or 86 in which the identification of gene variants is indicative of a higher risk of developing CNS dysfunction, damage or disease or experiencing the symptoms and consequences of CNS dysfunction, damage or disease for the patient or individual.
- 98. A method for generating a model to assess whether a patient or individual or population or group is or are likely to develop CNS dysfunction, damage or disease or experiencing the symptoms and consequences of CNS dysfunction. damage or disease, which method comprises:
- obtaining DNA or RNA or protein samples from patients or individuals i) diagnosed as suffering from CNS dysfunction, damage or disease;
- ii) obtaining DNA or RNA or protein samples from a control group of subjects diagnosed as not suffering from the CNS dysfunction, damage or disease;
- analysing the samples obtained in i) and ii) to identify the polymorphic iii) variations encoded in the core group of genes as defined in any of claims 70 to
- calculating the frequencies of these alleles in the samples from i) and ii); iv)
- v) comparing the frequencies of these alleles in i) and ii);
- vi) performing a statistical analysis on the results from v) in order to generate a model for assessing the risk of developing symptoms and consequences of CNS dysfunction, damage or disease.
- 99. A method for assessing whether a given subject will be at risk of developing the symptoms and consequences of CNS dysfunction, damage or disease. which comprises comparing said subject's genotype with a model generated by the method of claim 98.
- 100. A method according to any of claims 85, 86, 98 and 99 wherein at least one step is computer-controlled.
- 101. An assay suitable for use in a method according to any of claims 85, 86, 98 and 99; said assay comprising means for determining the presence or absence of relevant polymorphic variants of the core group of genes as defined in any of claims 70 to 76 in a biological sample.
- 102. A formatted assay technique (kit) for use in assessing the risk of a patient or individual developing the symptoms and consequences of CNS dysfunction, damage or disease; said kit comprising:

- i) means for testing for the presence or absence or DNA or RNA encoding relevant polymorphic variants of the core group of genes as defined in claim 70 or 72 to 76 in a sample of human DNA
- ii) reagents for use in the detection process
- readout indicating the probability of a patient or individual developing the symptoms and consequences of CNS dysfunction, damage or disease.
- 103. A formatted assay technique (kit) for use in assessing the risk of a patient or individual developing the symptoms and consequences of CNS dysfunction, damage or disease; said kit comprising:
 - i) means for testing for the presence or absence of proteins encoded by the core group of genes and/or relevant polymorphic variants of the core group of genes as defined in any of claims 71 to 76 in an expressed-protein-containing human sample;
 - ii) reagents for use in the detection process readout indicating the probability of a patient or individual developing the symptoms and consequences of CNS dysfunction, damage or disease.
- 104. A set of probes according to claim 70, wherein the probes are selected from the group consisting of oligonucleotides and polynucleotides.
- 105.A set of nucleotide probes for detecting relevant variants (mutations and polymorphisms), e.g. nucleotide substitutions (missense, nonsense, splicing and regulatory), small deletions, small insertions, small insertion deletions, gross insertions, gross deletions, duplications, complex rearrangements and repeat variations in a target group of genes which relate to behavioural disturbance and aggression; said probes being complementary to DNA and RNA sequences of said group of genes; characterised in that said group is a core group of genes consisting of substantially all of the following:

KEY TO 'PROTEIN FUNCTION' COLUMN

- E ENZYME
- T TRANSPORT & STORAGE
- S STRUCTURAL
- I IMMUNITY
- N NERVOUS TRANSMISSION
- G GROWTH & DIFFERENTIATION

BEHAVIOUR GENE LIST	HUGO gene symbol	Protein function
11beta hydroxysteroid dehydrogenase 2	HSD11B2	E
4-hydroxyphenylpyruvate dioxygenase	HPD	E
Acetylcholine receptor, nicotinic, alpha A1	CHRNA1	N
Acetylcholine receptor, nicotinic, alpha A2	CHRNA2	N
Acetylcholine receptor, nicotinic, alpha A3	CHRNA3	N
Acetylcholine receptor, nicotinic, alpha A4	CHRNA4	N
Acetylcholine receptor, nicotinic, alpha A5	CHRNA5	N

Acetylcholine receptor, nicotinic, alpha A6	CHRNA6	Ν
Acetylcholine receptor, nicotinic, alpha A7	CHRNA7	Ν
Acetylcholine receptor, nicotinic, beta 1	CHRNB1	.N
Acetylcholine receptor, nicotinic, beta 2	CHRNB2	N
Acetylcholine receptor, nicotinic, beta 3	CHRNB3	N
Acetylcholine receptor, nicotinic, beta 4	CHRNB4	N
Acetylcholine receptor, nicotinic, epsilon	CHRNE	N
Acetylcholine receptor, nicotinic, gamma	CHRNG	N
Acetylcholinesterase	ACHE	E
Adenylate cyclase 1	ADCY1	
Adenylate cyclase 2	ADCY2	EEE
Adenylate cyclase 3	ADCY3	
Adenylate cyclase 4	ADCY4	
Adenylate cyclase 5	ADCY5	
Adenylate cyclase 5 Adenylate cyclase 6	ADCY6	=
•	ADCY7	_
Adenylate cyclase 7		
Adenylate cyclase 8	ADCY8	
Adenylate cyclase 9	ADCY9	
alpha-synuclein	SNCA	N
Amyloid beta A4 precursor protein	APP	N
Amyloid beta A4 precursor-like protein	APLP	N
Androgen binding protein	ABP	T
Androgen receptor	AR	G
Apolipoprotein E	APOE	T
Arginosuccinate synthetase	ASS	Ε
Ataxia telangiectasia gene, AT	ATM	G
beta-synuclein	SNCB	Ν
Ca(2+) transporting ATPase, slow twitch	ATP2A2	T
Cannabinoid receptor	CNR1	Ν
Carbonic anhydrase 3	CA3	Ε
Carbonic anhydrase 4	CA4	Ε
Carbonic anhydrase, alpha	CA1	E
Carbonic anhydrase, beta	CA2	Ε
Catechol-O-methyltransferase	COMT	E
Cholecystokinin	CCK	Ν
Cholecystokinin B receptor	CCKBR	N
Choline acetyltransferase	CHAT	Ε
Ciliary neurotrophic factor (CNTF)	CNTF	G
Ciliary neurotrophic factor (CNTF) receptor	CNTFR	G
Corticotrophin-releasing hormone	CRH	Т
Corticotrophin-releasing hormone receptor	CRHR1	T
Cryptochrome 1	CRY1	S
Cryptochrome 2	CRY2	S
Cu2+ transporting ATPase beta polypeptide	ATP7B	F
Cyclic AMP-dependent protein kinase	PKA	E
Cyclooxygenase 1	COX1	E
Cyclooxygenase 2	COX2	<u>_</u>
CYP11A1	CYP11A1	E
VII 11/11	OH HAI	⊏

CYP11B1	CYP11B1 E
CYP11B2	CYP11B2 E
CYP17	CYP17 .E
CYP19	CYP19 E
CYP1A1	CYP1A1 E
CYP1A2	CYP1A2 E
CYP1B1	CYP1B1 E
CYP21	CYP21 E
CYP24	CYP24 E
CYP27	CYP27 E
CYP27B1	PDDR E
CYP2A1	CYP2A1 E
CYP2A13	CYP2A13 E
CYP2A3	CYP2A3 E
CYP2A6V2	CYP2A6V2 E
CYP2A7	CYP2A7 E
	_
CYP2B6	CYP2B6 E
CYP2C18	CYP2C18 E
CYP2C19	CYP2C19 E
CYP2C8	CYP2C8 E
CYP2C9	CYP2C9 E
CYP2D6	CYP2D6 E
CYP2E1	CYP2E1 E
CYP2F1	CYP2F1 E
CYP2J2	CYP2J2 E
CYP3A3	CYP3A3 E
CYP3A4	CYP3A4 E
CYP3A5	CYP3A5 E
CYP3A7	CYP3A7 E
CYP4A11	CYP4A11 E
CYP4B1	CYP4B1 E
CYP4F2	CYP4F2 E
CYP4F3	CYP4F3 E
CYP51	CYP51 E
CYP5A1	CYP5A1 E
CYP7A	CYP7A E
CYP8	CYP8 E
Cystathionase	CTH E
Cystathione beta synthase	CBS E
Cytidine deaminase	CDA E
Cytidine-5-prime-triphosphate synthetase	CTPS E
Cytochrome a	E
Cytochrome c	E
Cytochrome c oxidase, MTCO	E
Dihydrolipoamide branched chain transacylase	
Dopamine beta hydroxylase	DBH E
Dopamine receptors D1	DRD1 N
Dopamine receptors D2	DRD2 N

Dopamine receptors D3 Dopamine receptors D4 Dopamine receptors D5	DRD3 DRD4 DRD5	N N
Doublecortin, DCX	DCX	N
Enolase	ENO1	S E
Flightless-II, Drosophila homolog of	FLII	
Fragile site, folic acid type, rare, fra(X) A	FRAXA	G
Fragile site, folic acid type, rare, fra(X) E	FRAXE	N
Fragile site, folic acid type, rare, fra(X) F	FRAXE	N
GABA receptor, alpha 1	GABRA1	N N
GABA receptor, alpha 2	GABRA2	N
GABA receptor, alpha 3	GABRA3	N
GABA receptor, alpha 4	GABRA4	N
GABA receptor, alpha 5	GABRA5	N
GABA receptor, alpha 6	GABRA6	N
GABA receptor, beta 1	GABRB1	N
GABA receptor, beta 2	GABRB2	N
GABA receptor, beta 3	GABRB3	N
GABA receptor, gamma 1	GABRG1	N
GABA receptor, gamma 2	GABRG2	N
GABA receptor, gamma 3	GABRG3	N
Galactose 1-phosphate uridyl-transferase	GALT	E
Geniospasm 1	GSM1	G
Glutathione	GSH	T
Glutathione S-transferase, GSTZ1	GSTZ1	Ë
Glyceraldehyde-3-phosphate dehydrogenase,	GAPDH	Ē
GAPDH	J J	_
Glycerol kinase	GK	Ε
Glycinamide ribonucleotide (GAR)	GART	Ē
transformylase		_
GM2 ganglioside activator protein, GM2A	GM2A	Е
Gustducin, alpha (taste-specific G protein)	GDCA	N
Inositol monophosphatase	IMPA1	N
IP3 kinase		E
Mannosidase, beta A lysosomal	MANBA	Ε
Melatonin receptor 1A	.MTNR1A	N
Melatonin receptor 1B	MTNR1B	Ν
Monoamine oxidase A	MAOA	Ε
Monoamine oxidase B	MAOB.	Ε
Muscarinic receptor, M1	CHRM1	Ν
Muscarinic receptor, M2	CHRM2	Ν
Muscarinic receptor, M3	CHRM3	N
Muscarinic receptor, M4	CHRM4	N
Muscarinic receptor, M5	CHRM5	N
N-acetylglucosamine-6-sulfatase	GNS	Ε
NADPH-dependent cytochrome P450	POR	Ε
reductase		
Neurokinin A	111/11/1	Ν
Neurokinin A	NKNA	1.4

Neurokinin B	NKNB	Ν
Neuropeptide Y	NPY	Ν
	NPY1R	.N
Neuropeptide Y receptor Y2	NPY2R	Ν
Neurotensin	NTS	Ν
Neurotensin receptor	NTSR1	Ν
Nitric oxide synthase 1, NOS1	NOS1	E
Nitric oxide synthase 2, NOS2	NOS2	Ε
Nitric oxide synthase 3, NOS3	NOS3	Ε
Ocular albinism 1	OA1	S
Opioid receptor, delta	OPRD1	Ν
Opioid receptor, kappa	OPRK1	Ν
Opioid receptor, mu	OPRM1	Ν
Orexin	OX	G
Orexin 1 receptor	OX1R	G
Orexin 2 receptor	OX2R	G
Phosphoglycerate kinase 1	PGK1	Ε
Potassium inwardly-rectifying channel J1	KCNJ1	Ν
Potassium voltage-gated channel E1	KCNE1	Ν
Potassium voltage-gated channel Q1	KCNQ1	Ν
Preproenkephalin	PENK	Ν
Preproglucagon	GCG;GLP1; GLP2	G
Prion protein	PRNP	Ν
Proline dehydrogenase	PRODH	E
Pro-melanin-concentrating hormone	PMCH	G
Proopiomelanocortin	POMC	Ν
Purine nucleoside phosphorylase	NP	Ε
RIGUI	RIGUI	G
Serotonin N-acetyltransferase	SNAT	Æ
Serotonin receptor, 5HT1A	HTR1A	Ν
Serotonin receptor, 5HT1B	HTR1B	Ν
Serotonin receptor, 5HT1C	HTR1C	Ν
Serotonin receptor, 5HT1D	HTR1D	Ν
Serotonin receptor, 5HT1E	HTR1E	Ν
Serotonin receptor, 5HT1F	HTR1F	Ν
Serotonin receptor, 5HT2A	HTR2A	Ν
Serotonin receptor, 5HT2B	HTR2B	Ν
Serotonin receptor, 5HT2C	HTR2C	Ν
Serotonin receptor, 5HT3	HTR3	Ν
Serotonin receptor, 5HT4	HTR4	Ν
Serotonin receptor, 5HT5	HTR5	Ν
Serotonin receptor, 5HT6	HTR6	Ν
Serotonin receptor, 5HT7	HTR7	Ν
Solute carrier family 18, member 3	SLC18A3	T
Solute carrier family 6 (GAMMA-	SLC6A1	Т
AMINOBUTYRIC ACID transporter), member 1		
Solute carrier family 6 (neurotransmitter	SLC6A3	Т
transporter, dopamine), member 3		

Solute carrier family 6 (neurotransmitter transporter, noradrenaline), member 2	SLC6A2	Т
Solute carrier family 6 (neurotransmitter	SLC6A4	Т
transporter, serotonin), member 4	020074	•
Synapsin 1a & 1b	SYN1	N
Synapsin 2a & 2b	SYN2	N
Synaptogyrin .	31112	N
Synaptophysin	SYP	N
Synaptosomal-associated protein, 25KD	SNAP25	N
Syntaxin 1	STX1	·N
Tachykinin receptor, NK1R	TACR1	N
· · · · · · · · · · · · · · · · · · ·	TACR2	N
Tachykinin receptor, NK2R Tachykinin receptor, NK3R	TACR3	
	MAPT	N
Tau protein	TPH	S
Tryptophan hydroxylase		Ε
Tyrosine hydroxylase	TH	E
Ubiquitin	LIDD	G
Ubiquitin B	UBB	G
Ubiquitin C	UBC	G
UDP-glucuronosyltransferase 1	ugt1d, UGT1	E
UDP-glucuronosyltransferase 2	UGT2	E
Vacuolar proton pump, subunit 1	VPP1	N
Vacuolar proton pump, subunit 3	VPP3	N
Vasoactive intestinal polypeptide	VIP	Ν
Vasoactive intestinal polypeptide receptor	VIPR	Ν

- 106.A set of probes, said probes being antibodies or antibody fragments which interact with specific expressed proteins encoded by gene sequences of a group of genes, said probes being for detecting relevant variants (mutations and polymorphisms), e.g. nucleotide substitutions (missense, nonsense, splicing and regulatory), small deletions, small insertions, small insertion deletions, gross insertions, gross deletions, duplications, complex rearrangements and repeat variations in a target group of genes; characterised in that said group is a core group of genes consisting of substantially all of the genes defined in claim 105.
- 107.A set according to claim 105 or 106 in which a minority of said probes for listed genes are absent.
- 108.A set according to claim 105 or 106 in which a limited number of additional probes are present together with substantially all of the probes for the listed genes.
- 109.A set according to claim 105 or 106 in which a limited number of probes are replaced by probes for non-listed genes.
- 110. A set of probes for a core group of genes according to any of claims 105 to 109 in which each gene to be probed is substantially similar (greater than 85% homologous) in sequence to the respective member of the core list of genes.

- 111. A set according to any of claims 105 to 110 consisting of probes for members of a sub-group of the core group.
- 112. A set according to any preceding claim in which said probes are in the form of an array and are spatially arranged at known locations on a substrate.
- 113. A set according to any preceding claim wherein said probes are on a substrate which forms part of or consists of one or more chip plate(s), for use in a chip assay for detection of said gene variants.
- 114. A set according to any preceding claim in which said probes are mass, electrostatic or fluorescence tagged probes.
- 115. A set according to claim 112 or 113 in which said substrate is a semiconductor microchip.
- 116. A set according to any preceding claim for use in a biological assay for detection of said gene variants.
- 117. A set according to any preceding claim for use in the measurement of differential gene expression levels.
- 118. A medical device including a set according to any preceding claim for use in an assay for detection of said gene variants.
- 119. A medical device including a set according to any of claims 105 to 117 for use in an array for detection of differential gene expression levels.
- 120. A method for use in assessing the genomic profile of a patient or individual, the method comprising testing for and detecting the presence or absence of DNA or RNA encoding the relevant structural variants (as defined in claim 105) in a target group of genes by hybridising a nucleic acid-containing sample from said patient or individual to a set according to any of claims 105 and 107 to 117 and relating the probe hybridisation pattern to said variations.
- 121. A method for use in assessing the the genomic profile of a patient or individual, the method comprising testing for and detecting the presence or absence of DNA or RNA encoding the relevant structural variants (as defined in claim 106) in a target group of genes by interacting an expressed-protein-containing sample from said patient or individual with a set of probes according to any of claims 106 to 117 and relating the probe interaction pattern to said variations.
- 122. Use of a set or device according to any of claims 105 to 117 for the prognosis and management of patients suffering from or at risk of developing aggressive symptoms or behavioural disturbance.
- 123. Use of a set or device according to any of claims 105 to 117 for predicting likely therapeutic response and adverse events following therapeutic intervention.
- 124. Use of a set or device according to any of claims 105 to 117 for predicting likely therapeutic response and adverse events following the intake of a specific drug.
- 125. Use of a set or device according to any of claims 105 to 117 for predicting likely patterns of symptom clusters (symptom profiles) in disease and the likelihood of subsequent, contingent, disease or symptoms.
- 126. Use of a set or device according to any of claims 105 to 117 for general health screening, occupational health purposes, healthcare planning on a population basis and other healthcare management utilisations.

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- 127. Use of a set or device according to any of claims 105 to 117 for the development of new strategies of therapeutic intervention and in clinical trials.
- 128. Use of a set or device according to any of claims 105 to 117 for construction of and generation of algorithms for patient and healthcare management.
- 129. Use of a set or device according to any of claims 105 to 117 for modelling or assessing the impact of diseases or healthcare management strategies on individuals, groups, patient cohorts or populations
- 130. Use of a set or device according to any of claims 105 to 117 for modelling, assessing or exploring the theoretical impact of diseases and healthcare management strategies on individuals, groups, patient cohorts or populations.
- 131. Use of a set or device according to any of claims 105 to 117 for predicting optimum configuration/management of thereapeutic intervention.
- 132. A method according to claim 120 or 121 in which the identification of gene variants is indicative of a higher risk of developing aggressive symptoms and/or behavioural disturbance for the patient or individual.
- 133. A method for generating a model to assess whether a patient or individual or population or group is or are likely to develop aggressive symptoms and/or behavioural disturbance which method comprises:
- i) obtaining DNA or RNA or protein samples from patients or individuals diagnosed as suffering from aggressive symptoms and/or behavioural disturbance;
- ii) obtaining DNA or RNA or protein samples from a control group of subjects diagnosed as not suffering from aggressive symptoms and/or behavioural disturbance;
- iii) analysing the samples obtained in i) and ii) to identify the polymorphic variations encoded in the core group of genes as defined in any of claims 105 to 111:
- iv) calculating the frequencies of these alleles in the samples from i) and ii);
- v) comparing the frequencies of these alleles in i) and ii);
- vi) performing a statistical analysis on the results from v) in order to generate a model for assessing the risk of developing aggressive symptoms and/or behavioural disturbance.
- 134. A method for assessing whether a given subject will be at risk of developing aggressive symptoms and/or behavioural disturbance, which comprises comparing said subject's genotype with a model generated by the method of claim 133.
- 135. A method according to any of claims 120, 121, 133and 134 wherein at least one step is computer-controlled.
- 136. An assay suitable for use in a method according to any of claims 120, 121, 133 and 134; said assay comprising means for determining the presence or absence of relevant polymorphic variants of the core group of genes as defined in any of claims 105 to 111 in a biological sample.
- 137. A formatted assay technique (kit) for use in assessing the risk of a patient or individual developing aggressive symptoms and/or behavioural disturbance; said kit comprising:
 - i) means for testing for the presence or absence or DNA or RNA encoding relevant polymorphic variants of the core group of genes as defined in claim 105 or 107 to 111 in a sample of human DNA;

- ii) reagents for use in the detection process
- readout indicating the probability of a patient or individual developing aggressive symptoms and/or behavioural disturbance.
- 138. A formatted assay technique (kit) for use in assessing the risk of a patient or individual developing aggressive symptoms and/or behavioural disturbance; said kit comprising:
 - i) means for testing for the presence or absence of proteins encoded by the core group of genes and/or relevant polymorphic variants of the core group of genes as defined in any of claims 106 to 111 in an expressed-protein-containing human sample;
 - ii) reagents for use in the detection process
 - iii) readout indicating the probability of a patient or individual developing aggressive symptoms and/or behavioural disturbance.
- 139. A set of probes according to claim 105, wherein the probes are selected from the group consisting of oligonucleotides and polynucleotides.
- 140. A set of nucleotide probes for detecting relevant variants (mutations and polymorphisms), e.g. nucleotide substitutions (missense, nonsense, splicing and regulatory), small deletions, small insertions, small insertion deletions, gross insertions, gross deletions, duplications, complex rearrangements and repeat variations in a target group of genes which relate to brain injury; said probes being complementary to DNA and RNA sequences of said group of genes; characterised in that said group is a core group of genes consisting of substantially all of the following:

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- E ENZYME
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- N NERVOUS TRANSMISSION
- G GROWTH & DIFFERENTIATION

BRAIN INJURY GENE LIST	HUGO gene symbol	Protein function
2,3-bisphosphoglycerate mutase	BPGM	E
3 beta hydroxysteroid dehydrogenase 2	HSD3B2	E
4-hydroxyphenylpyruvate dioxygenase	HPD	E
5,10-methylenetetrahydrofolate reductase	MTHFR	Ε
(NADPH)		
6-pyruvoyltetrahydropterin synthase	PTS	E
Acetoacetyl 2-CoA-thiolase	ACAT2	Ε
Acetyl CoA acyltransferase	ACAA	Ε
Acetylcholine receptor, nicotinic, alpha A1	CHRNA1	N
Acetylcholine receptor, nicotinic, alpha A2	CHRNA2	Ν
Acetylcholine receptor, nicotinic, alpha A3	CHRNA3	Ν
Acetylcholine receptor, nicotinic, alpha A4	CHRNA4	Ν

Acetylcholine receptor, nicotinic, alpha A5 Acetylcholine receptor, nicotinic, alpha A6 Acetylcholine receptor, nicotinic, alpha A7 Acetylcholine receptor, nicotinic, beta 1 Acetylcholine receptor, nicotinic, beta 2 Acetylcholine receptor, nicotinic, beta 3 Acetylcholine receptor, nicotinic, beta 4 Acetylcholine receptor, nicotinic, epsilon Acetylcholine receptor, nicotinic, gamma Acetylcholinesterase Adducin, alpha Adducin, beta Adenosine receptor A1 Adenosine receptor A2A Adenosine receptor A3 Adenylate cyclase 1 Adenylate cyclase 2 Adenylate cyclase 3 Adenylate cyclase 5 Adenylate cyclase 6 Adenylate cyclase 6 Adenylate cyclase 7 Adenylate cyclase 8 Adenylate cyclase 9 Adrenergic receptor, alpha1 Adrenergic receptor, beta1 Adrenergic receptor, beta2 Adrenergic receptor, beta3 Adrenocorticotrophic hormone (ACTH)	CHRNA5 CHRNA6 CHRNA7 CHRNB1 CHRNB2 CHRNB3 CHRNB4 CHRNE CHRNG ACHE ADD1 ADD2 ADORA1 ADORA2A ADORA2B ADORA3 ADCY1 ADCY2 ADCY3 ADCY4 ADCY5 ADCY5 ADCY6 ADCY7 ADCY8 ADCY7 ADCY8 ADCY9 ADRA1 ADRA2 ADRA1 ADRA2 ADRB1 ADRB2 ADRB3 ACTHR	ZZZZZZZZZM O O ZZZZZ M H H H H H H H H Z Z Z Z Z Z O
receptor Albumin, ALB Aldehyde dehydrogenase 10 Aldosterone receptor Alpha 1 acid glycoprotein Alpha 2 macroglobulin alpha thalassemia gene alpha1-antitrypsin alpha2-antiplasmin alpha-synuclein Aminomethyltransferase Aminopeptidase P Amyloid beta (A4) precursor protein		TEGT-NEENEEN N
Amyloid beta A4 precursor protein Amyloid beta A4 precursor-like protein Angiopoietin 1	APP APLP ANGPT1	N N G

Angiopoietin 2 Angiotensin converting enzyme Angiotensin receptor 1 Angiotensin receptor 2 Angiotensinogen Annexin 1 Antidiuretic hormone receptor	ANGPT2 ACE, DCP1 AGTR1 AGTR2 AGT ANX 1 ADHR	GETTEIT
Antithrombin III Apolipoprotein A I Apolipoprotein A II	AT3 APOA1 APOA2	E T T
Apolipoprotein B Apolipoprotein C1 Apolipoprotein C2 Apolipoprotein C3	APOB APOC1 APOC2 APOC3	T T T
Apolipoprotein D Apolipoprotein E Apolipoprotein H Apoptosis antigen 1	APOD APOE APOH APT1	T T T
Arginase Arginine vasopressin Arginine vasopressin receptor 1A Arginine vasopressin receptor 1B	ARG1 AVP AVPR1A AVPR1B	E Z Z Z
Arginine vasopressin receptor 2 Arginosuccinate lyase Arginosuccinate synthetase	AVPR2 ASL ASS	N E E
Arylsulfatase A Arylsulfatase D Arylsulfatase E Arylsulfatase F	ARSA ARSD ARSE ARSF	шшшшш
Aspartoacylase Ataxia telangiectasia gene, AT Atrial natriuretic peptide Atrial natriuretic peptide receptor A	ASPA ATM ANP NPR1	EGGG
Atrial natriuretic peptide receptor B Atrial natriuretic peptide receptor C Bagpipe homeobox, drosophila homolog of, 1 beta-synuclein	NPR2 NPR3	GGGZ
Bleomycin hydrolase Bradykinin receptor B1 Bradykinin receptor B2	BLMH	EII
Brain derived neurotrophic factor Brain derived neurotrophic factor (BDNF) receptor Butyrylcholinesterase	BDNF BDNFR BCHE	G G E
Ca(2+) transporting ATPase, slow twitch Cadherin E Cadherin EP	ATP2A2 CDH1	T G G
Cadherin N	CDH2	G

Calcineurin A3 Calcineurin B Calcitonin/Calcitonin gene-related peptide alpha Calcium channel, voltage-dependent, alpha Calcium channel, voltage-dependent, Alpha- 1B (CACNL1A5) Calcium channel, voltage-dependent, Alpha- 1C Calcium channel, voltage-dependent, Alpha- 1C Calcium channel, voltage-dependent, Alpha- 1D Calcium channel, voltage-dependent, Alpha- 1E (CACNL1A6) Calcium channel, voltage-dependent, Alpha- 1E (CACNL1A6) Calcium channel, voltage-dependent, Alpha- 2/delta Calcium channel, voltage-dependent, Beta 1 Calcium channel, voltage-dependent, Beta 3 Calcium channel, voltage-dependent, Beta 3 Calcium channel, voltage-dependent, L type, CACNA1S alpha 1S subunit Calcium channel, voltage-dependent, CACNG2 Neuronal, Gamma Calcium channel, voltage-dependent, P/Q type, alpha 1A subunit Calcium channel, voltage-dependent, T-type Calmodulin 1 CALM1 GALNA3 I CALNA3 I CALNA4 N N CACNA1B I CACNA1D N CACNA1E N CACNA1E N CACNB1 CACNB1 N CACNB3 N CACNB3 N CACNB3 N CACNA1S N N CACNA1S N N CACNA1S N N CACNA1S N N CACNA1S N N CACNA1A N N CACNA1A N N CACNA1A N N CACNA1A N N CACNA1A N CACN
Calcitonin/Calcitonin gene-related peptide alpha Calcium channel, voltage-dependent, alpha Calcium channel, voltage-dependent, Alpha- Calcium channel, voltage-dependent, Alpha- Calcium channel, voltage-dependent, Alpha- Calcium channel, voltage-dependent, Alpha- Calcium channel, voltage-dependent, Alpha- Calcium channel, voltage-dependent, Alpha- Calcium channel, voltage-dependent, Alpha- Calcium channel, voltage-dependent, Alpha- Calcium channel, voltage-dependent, Alpha- Calcium channel, voltage-dependent, Beta 1 Calcium channel, voltage-dependent, Beta 1 Calcium channel, voltage-dependent, Beta 3 Calcium channel, voltage-dependent, L type, alpha 1S subunit Calcium channel, voltage-dependent, P/Q Neuronal, Gamma Calcium channel, voltage-dependent, P/Q Cacnala N Calcium channel, voltage-dependent, P/Q Cacnala N Calcium channel, voltage-dependent, P/Q Cacnala N Calcium channel, voltage-dependent, P/Q Cacnala N Calcium channel, voltage-dependent, P/Q Cacnala N Calcium channel, voltage-dependent, P/Q Cacnala N Calcium channel, voltage-dependent, P/Q Cacnala N Calcium channel, voltage-dependent, P/Q Cacnala N Calcium channel, voltage-dependent, P/Q Cacnala N Calcium channel, voltage-dependent, P/Q Cacnala
Calcium channel, voltage-dependent, alpha 1F subunit Calcium channel, voltage-dependent, Alpha- 1B (CACNL1A5) Calcium channel, voltage-dependent, Alpha- 1C Calcium channel, voltage-dependent, Alpha- 1D Calcium channel, voltage-dependent, Alpha- 1E (CACNL1A6) Calcium channel, voltage-dependent, Alpha- 1E (CACNL1A6) Calcium channel, voltage-dependent, Alpha- 2/delta Calcium channel, voltage-dependent, Beta 1 Calcium channel, voltage-dependent, Beta 3 Calcium channel, voltage-dependent, L type, CACNA1S Alpha 1S subunit Calcium channel, voltage-dependent, CACNG2 Neuronal, Gamma Calcium channel, voltage-dependent, P/Q Neuronal, Gamma Calcium channel, voltage-dependent, P/Q CACNA1A N type, alpha 1A subunit Calcium channel, voltage-dependent, T-type N
Calcium channel, voltage-dependent, Alpha- CACNA1B N 1B (CACNL1A5) Calcium channel, voltage-dependent, Alpha- CACNA1C Calcium channel, voltage-dependent, Alpha- Calcium channel, voltage-dependent, Alpha- Calcium channel, voltage-dependent, Alpha- Calcium channel, voltage-dependent, Alpha- Calcium channel, voltage-dependent, Alpha- Calcium channel, voltage-dependent, Beta 1 Calcium channel, voltage-dependent, Beta 3 Calcium channel, voltage-dependent, Beta 3 Calcium channel, voltage-dependent, L type, CACNA1S Alpha 1S subunit Calcium channel, voltage-dependent, CACNG2 N Neuronal, Gamma Calcium channel, voltage-dependent, P/Q CACNA1A N type, alpha 1A subunit Calcium channel, voltage-dependent, T-type N
Calcium channel, voltage-dependent, Alpha- CACNA1C Calcium channel, voltage-dependent, Alpha- CACNA1D N Calcium channel, voltage-dependent, Alpha- CACNA1E N Calcium channel, voltage-dependent, Alpha- Calcium channel, voltage-dependent, Alpha- Calcium channel, voltage-dependent, Beta 1 Calcium channel, voltage-dependent, Beta 1 Calcium channel, voltage-dependent, Beta 3 Calcium channel, voltage-dependent, L type, CaCNA1S Alpha 1S subunit Calcium channel, voltage-dependent, CaCNG2 N Neuronal, Gamma Calcium channel, voltage-dependent, P/Q CACNA1A N type, alpha 1A subunit Calcium channel, voltage-dependent, T-type N
Calcium channel, voltage-dependent, Alpha- CACNA1D Calcium channel, voltage-dependent, Alpha- 1E (CACNL1A6) Calcium channel, voltage-dependent, Alpha- 2/delta Calcium channel, voltage-dependent, Beta 1 Calcium channel, voltage-dependent, Beta 3 Calcium channel, voltage-dependent, Beta 3 Calcium channel, voltage-dependent, L type, CACNA1S alpha 1S subunit Calcium channel, voltage-dependent, CACNG2 Neuronal, Gamma Calcium channel, voltage-dependent, P/Q CACNA1A N type, alpha 1A subunit Calcium channel, voltage-dependent, T-type N
Calcium channel, voltage-dependent, Alpha- 1E (CACNL1A6) Calcium channel, voltage-dependent, Alpha- 2/delta Calcium channel, voltage-dependent, Beta 1 CACNB1 Calcium channel, voltage-dependent, Beta 3 CACNB3 Calcium channel, voltage-dependent, L type, CACNA1S Alpha 1S subunit Calcium channel, voltage-dependent, CACNG2 Neuronal, Gamma Calcium channel, voltage-dependent, P/Q CACNA1A N type, alpha 1A subunit Calcium channel, voltage-dependent, T-type N
Calcium channel, voltage-dependent, Alpha- 2/delta Calcium channel, voltage-dependent, Beta 1 CACNB1 N Calcium channel, voltage-dependent, Beta 3 CACNB3 N Calcium channel, voltage-dependent, L type, CACNA1S N alpha 1S subunit Calcium channel, voltage-dependent, CACNG2 N Neuronal, Gamma Calcium channel, voltage-dependent, P/Q CACNA1A N type, alpha 1A subunit Calcium channel, voltage-dependent, T-type N
Calcium channel, voltage-dependent, Beta 1 CACNB1 N Calcium channel, voltage-dependent, Beta 3 CACNB3 N Calcium channel, voltage-dependent, L type, CACNA1S N alpha 1S subunit Calcium channel, voltage-dependent, CACNG2 N Neuronal, Gamma Calcium channel, voltage-dependent, P/Q CACNA1A N type, alpha 1A subunit Calcium channel, voltage-dependent, T-type N
Calcium channel, voltage-dependent, Beta 3 CACNB3 N Calcium channel, voltage-dependent, L type, CACNA1S N alpha 1S subunit Calcium channel, voltage-dependent, CACNG2 N Neuronal, Gamma Calcium channel, voltage-dependent, P/Q CACNA1A N type, alpha 1A subunit Calcium channel, voltage-dependent, T-type N
Calcium channel, voltage-dependent, L type, CACNA1S alpha 1S subunit Calcium channel, voltage-dependent, CACNG2 N Neuronal, Gamma Calcium channel, voltage-dependent, P/Q CACNA1A N type, alpha 1A subunit Calcium channel, voltage-dependent, T-type N
alpha 1S subunit Calcium channel, voltage-dependent, CACNG2 N Neuronal, Gamma Calcium channel, voltage-dependent, P/Q CACNA1A N type, alpha 1A subunit Calcium channel, voltage-dependent, T-type N
Calcium channel, voltage-dependent, CACNG2 N Neuronal, Gamma Calcium channel, voltage-dependent, P/Q CACNA1A N type, alpha 1A subunit Calcium channel, voltage-dependent, T-type N
Neuronal, Gamma Calcium channel, voltage-dependent, P/Q CACNA1A N type, alpha 1A subunit Calcium channel, voltage-dependent, T-type N
Calcium channel, voltage-dependent, P/Q CACNA1A N type, alpha 1A subunit Calcium channel, voltage-dependent, T-type N
type, alpha 1A subunit Calcium channel, voltage-dependent, T-type N
Calcium channel, voltage-dependent, T-type N
Calmodulin 1 CALM1 G
Calmodulin 2 CALM2 G
Calmodulin 3 CALM3 G
Calmodulin-dependant protein kinase II CAMK2A G
Calnexin CANX G
Calpain CAPN, CAPN3 E
Calretinin CALB2 N
Carbonic anhydrase 3 CA3 E
Carbonic anhydrase 4 CA4 E
Carbonic anhydrase, alpha CA1 E
Carbonic anhydrase, beta CA2 E
Cardiac-specific homeobox, CSX CSX G
Carnosinase
Caspase 1 CASP1 G
Caspase 10 CASP10 G
Caspase 2 CASP2 G
Caspase 3 CASP3 G
Caspase 4 CASP4 G

Caspase 5 Caspase 6 Caspase 7 Caspase 8 Caspase 9 Catechol-O-methyltransferase CD1 CD4 Cell adhesion molecule, intercellular, ICAM Cell adhesion molecule, leukocyte- endothelial, LECAM (CD62)	CASP5 CASP6 CASP7 CASP8 CASP9 COMT CD1 CD4 ICAM1 LECAM1	00000E00
Cell adhesion molecule, liver, LCAM Cell adhesion molecule, neural, NCAM1 Cell adhesion molecule, neural, NCAM120 Cell adhesion molecule, neural, NCAM2 Cell adhesion molecule, platelet-endothelial, PECAM	LCAM NCAM1 NCAM120 NCAM2 PECAM1	GGGGG
Cell adhesion molecule, vascular, VCAM Ceroid lipofuscinosis neuronal 2 Ceroid lipofuscinosis neuronal 3 Ceroid lipofuscinosis neuronal 4 Ceroid lipofuscinosis neuronal 5 Ceroid lipofuscinosis neuronal 6 Chemokine receptor CXCR4	VCAM1 CLN2 CLN3 CLN4 CLN5 CLN6 CXCR4	GZZZZZ
Choline acetyltransferase Chymotrypsinogen Cockayne syndrome gene, CKN1 Cofilin Collagen alpha 1 Collagen alpha 2	CHAT CKN1 COL1A1 COL1A2	EEGSSS
Collagen II alpha 1 Collagen IV alpha 1 Collagen IV alpha 1 Collagen IV alpha 2 Collagen IV alpha 3	COL2A1 COL3A1 COL4A1 COL4A2 COL4A3	S S S S S
Collagen IV alpha 4 Collagen IV alpha 5 Collagen IV alpha 6 Collagen IX alpha 2 Collagen IX alpha 3 Collagen receptor	COL4A4 COL4A5 COL4A6 COL9A2, EDM2 COL9A3 COLR	S S S S S S
Collagen V alpha 1 Collagen V alpha 2 Collagen VI alpha 1 Collagen VI alpha 2 Collagen VI alpha 3 Collagen VII alpha 1 Collagen X alpha 1	COL5A1 COL5A2 COL6A1 COL6A2 COL6A3 COL7A1 COL10A1	8888888

Collagen X alpha 1 Collagen XI alpha 2	COL11A1 COL11A2	S S
Collagen XVII alpha 1	COL17A1	S
Corticotrophin-releasing hormone	CRH	T
•	CRHR1	
Corticotrophin-releasing hormone receptor	CREBBP	T
Creb binding protein	ATP7B	G
Cu2+ transporting ATPase beta polypeptide	PKA	E
Cyclic AMP-dependent protein kinase		E
Cyclic nucleotide phosphodiesterase 2A3	PDE2A3	E
Cyclic nucleotide phosphodiesterase 3A	PDE3A PDE3B	E
Cyclic nucleotide phosphodiesterase 3B	PDE3B PDE4A	E
Cyclic nucleotide phosphodiesterase 4A	PDE4C	E
Cyclic nucleotide phosphodiesterase 4C	PDE5A	E
Cyclic nucleotide phosphodiesterase 5A	PDE6A	
Cyclic nucleotide phosphodiesterase 6A		E
Cyclic nucleotide phosphodiesterase 6B	PDE6B PDE7	E
Cyclic nucleotide phosphodiesterase 7		E
Cyclic nucleotide phosphodiesterase 8	PDE8	E
Cyclic nucleotide phosphodiesterase 9A	PDE9A COX1	E
Cyclooxygenase 1	COX1	E
Cyclooxygenase 2 CYP11A1	CYP11A1	E
CYP11B1	CYP11B1	E
CYP11B2	CYP11B2	E
CYP17	CYP17	E
CYP19	CYP19	E
CYP1A1	CYP1A1	Ē
CYP1A2	CYP1A2	E
CYP1B1	CYP1B1	E
CYP21	CYP21	Ε
CYP24	CYP24	E
CYP27	CYP27	Ε
CYP27B1	PDDR	Ε
CYP2A1	CYP2A1	Ε
CYP2A13	CYP2A13	E
CYP2A3	CYP2A3	E
CYP2A6V2	CYP2A6V2	E
CYP2A7	CYP2A7	E
CYP2B6	CYP2B6	E
CYP2C18	CYP2C18	E
CYP2C19	CYP2C19	E
CYP2C8	CYP2C8	E
CYP2C9	CYP2C9	E
CYP2D6	CYP2D6	E
CYP2E1	CYP2E1	E
CYP2F1	CYP2F1	E
CYP2J2	CYP2J2	E
CYP3A3	CYP3A3	Ε

CYP3A4 CYP3A5 CYP3A7 CYP4A11 CYP4B1 CYP4F2 CYP4F3 CYP51 CYP5A1 CYP5A1 CYP7A CYP8 Cystatin B Cystatin C Cytidine-5-prime-triphosphate synthetase	CYP3A4 CYP3A5 CYP3A7 CYP4A11 CYP4B1 CYP4F2 CYP4F3 CYP51 CYP5A1 CYP7A CYP8 CSTB CST3 CTPS	
Cytochrome a		E
Cytochrome c Cytochrome c oxidase, MTCO		E
Cytokine-suppressive antiinflammatory drug-	CSBP1	-
binding protein 1	00DI 1	•
Cytokine-suppressive antiinflammatory drug-	CSBP2	l
binding protein 2		
DAX1 nuclear receptor	DAX1	1
Deleted in malignant brain tumours 1	DMBT1	G
Delta-7-dehydrocholesterol reductase	DHCR7	Ε
Dihydrolipoamide branched chain	DBT	N
transacylase	DUADAT	_
Dihydroxyacetonephosphate acyltransferase		E
Dopamine beta hydroxylase	DBH	E
Dopamine receptors D1	DRD1	N
Dopamine receptors D2	DRD2	N
Dopamine receptors D3 Dopamine receptors D4	DRD3 DRD4	N
Dopamine receptors D4 Dopamine receptors D5	DRD5	N
Dystonia 9	CSE	N
Dystrophia myotonica	DM, DMPK	S
Dystrophia myotonica, atypical	DM2	E
Dystrophin Dystrophin	DMD	S
Ectodermal Dysplasia 1 gene	ED1	S
Empty spiracles (drosophila) homologue 1	EMX1	G
Empty spiracles (drosophila) homologue 2	EMX2	G
Endothelin 1	EDN1	N
Endothelin 2	EDN2	N
Endothelin 3	EDN3	N
Endothelin converting enzyme	ECE1	N
Endothelin receptor type A	EDNRA	N
Endothelin receptor type B	EDNRB	N
Enolase	ENO1	E
Epidermal growth factor	EGF	G

Epidermal growth factor receptor Epilepsy, benign neonatal 4 gene Epilepsy, female restricted Epilepsy, progressive myoclonic 2 gene Excision repair complementation group 4 protein	EGFR ICCA EFMR EPM2A ERCC4	GEEEE
Factor 1 (No. one)	F1	1
Factor III	F3	1
Factor IX	F9	1
Factor V	F5	ı
Factor VII	F7	1
Factor VIII	F8	1
Factor X	F10	!
Factor XI	F11	
Factor XII Factor XIII A & B	F12 F13A & F13B	1
Fanconi anemia, complementation group C	FANCC	Ť
Fanconi anemia, complementation group D	FANCD	Ť
Fibrinogen alpha	FGA	s
Fibrinogen beta	FGB	Š
Fibrinogen gamma	FGG	S
Fibroblast growth factor	FGF1	G
Fibroblast growth factor receptor 1	FGFR1	G
Fibroblast growth factor receptor 2	FGFR2	G
Fibroblast growth factor receptor 3	FGFR3	G
Fibronectin precursor	FN1	G
Flightless-II, Drosophila homolog of	FLII	G
Follicle stimulating hormone receptor	FSHR, ODG1	G
Follicle stimulating hormone, FSH	FSHB	G
Formiminotransferase	EDAYA	E
Fragile site, folic acid type, rare, fra(X) A	FRAXA	N
Fragile site, folic acid type, rare, fra(X) E Fragile site, folic acid type, rare, fra(X) F	FRAXE FRAXF	N
Frataxin	FRDA	G
Fukuyama type congenital muscular	FCMD	G
dystrophy		Ŭ
Fumarase	FH	Ε
GABA receptor, alpha 1	GABRA1	N
GABA receptor, alpha 2	GABRA2	Ν
GABA receptor, alpha 3	GABRA3	Ν
GABA receptor, alpha 4	GABRA4	Ν
GABA receptor, alpha 5	GABRA5	Ν
GABA receptor, alpha 6	GABRA6	N
GABA receptor, beta 1	GABRB1	N
GABA receptor, beta 2	GABRB2	N
GABA receptor, beta 3	GABRB3	N
GABA receptor, gamma 1	GABRG1	N
GABA receptor, gamma 2	GABRG2	Ν

GABA receptor, gamma 3 GABA transaminase Galactosyltransferase 1 Galactosyltransferase, alpha 1,3 Galactosyltransferase, beta 3 Galanin Galanin receptor Gamma-glutamyltransferase 1 Gastric Intrinsic factor, GIF GDP dissociation inhibitor 1 Glial-cell derived neurotrophic factor (GDNF)	GABRG3 ABAT GT1 GGTA1 B3GALT GAL GALNR1 GGT1 GIF GDI1	Z
receptor Glial-cell derived neurotrophic factor, GDNF Glioma chloride ion channel, GCC Glutamate decarboxylase, GAD Glutamate receptor 1	GDNF GAD1 GLUR1	NGEN
Glutamate receptor 2	GLUR2	N
Glutamate receptor 3	GLUR3	N
Glutamate receptor 4	GLUR4	N
Glutamate receptor 5	GLUR5	Ν
Glutamate receptor 6	GLUR6	Ν
Glutamate receptor 7	GLUR7	Ν
Glutamate receptor, ionotropic, NMDA 1	NMDAR1	N
Glutamate receptor, ionotropic, NMDA 2A	NMDAR2A	Ν
Glutamate receptor, ionotropic, NMDA 2B	NMDAR2B	Ν
Glutamate receptor, ionotropic, NMDA 2C	NMDAR2C	N
Glutamate receptor, ionotropic, NMDA 2D	NMDAR2D	N
Glutaryl-CoA dehydrogenase	GCDH	Ε
Glutathione	GSH	T
Glutathione S-transferase, GSTZ1	GSTZ1	Ė
Glutathione synthetase	GSS	Ē
Glyceraldehyde-3-phosphate	GAPDH	Ē
dehydrogenase, GAPDH	O/ D	_
Glycerol kinase	GK	Ε
Glycinamide ribonucleotide (GAR)	GART	E
transformylase	37 11 (1	_
Glycine dehydrogenase	GLDC	E
GM2 ganglioside activator protein, GM2A	GM2A	E
Gonadotropin releasing hormone receptor	GNRHR	G
GTP cylcohydrolase 1	GCH1	Ğ
Guanine nucleotide-binding protein, alpha	GNAO1	N
— · · · · · · · · · · · · · · · · · · ·	GNAOT	1.4
activating activity polypeptide, GNAO	GUCY2D	Ε
Guanylate cyclase 2D, membrane (retina-	000120	-
specific) Guanylate cyclase activator 1A (retina)	GUCA1A	Ε
· · · · · · · · · · · · · · · · · · ·	JUDATA	E
Guanylyl cyclase		E
Haeme regulated inhibitor kinase	LIDA1	T
Haemoglobin alpha 1	HBA1	ı

Haemoglobin alpha 2 Haemoglobin beta Haemoglobin delta Haemoglobin gamma A Haemoglobin gamma B Haemoglobin gamma G Heparan sulfamidase Heparin binding epidermal growth factor Heparin Cofactor II Hepatic lipase Hexosaminidase A Hexosaminidase B Histamine receptors, H1 Histamine receptors, H2 Histamine receptors, H3	HBA2 HBB HBD HBG1 HBG2 HBGG HBEGF HCF2 LIPC HEXA,TSD HEXB	TTTTTEG-EEENNN
Histidase HLA-B associated transcript 1 HMG-CoA reductase Holocarboxylase synthetase Holoprosencephaly 1 Holoprosencephaly 2 Holoprosencephaly 3 Holoprosencephaly 4 Hypoxia inducible factor 1 Hypoxia inducible factor 2 IC7 A and B	BAT1 HMGCR HLCS HPE1 HPE2 HPE3 HPE4 HIF1A	ш – ш ш G G G G ш ш –
Inositol 1,4,5-triphosphate receptor 1 Inositol monophosphatase Insulin Insulin receptor Insulin-like growth factor 1 Insulin-like growth factor 1 receptor Insulin-like growth factor 2 Insulin-like growth factor 2 receptor Integrin beta 1 Integrin beta 3 Integrin beta 3 Integrin beta 4 Integrin beta 6 Integrin beta 7 Integrin, alpha 1 Integrin, alpha 3 Integrin, alpha 3 Integrin, alpha 5 Integrin, alpha 6 Integrin, alpha 6 Integrin, alpha 7	ITPR1 IMPA1 INS INSR IGF1 IGF1R IGF2 IGF2R ITGB1 ITGB2 ITGB3 ITGB4 ITGB5 ITGB6 ITGB7 ITGA1 ITGA2 ITGA1 ITGA2 ITGA3 ITGA4 ITGA5 ITGA6 ITGA7	

Integrin, alpha 8	ITGA8	G
Integrin, alpha 9	ITGA9	G
Integrin, alpha M	ITGAM	G
Integrin, alpha X	ITGAX ·	G
Inter-alpha-trypsin inhibitor, IATI		E
Interleukin(IL) 1 receptor	IL1R	Í
Interleukin(IL) 1, alpha	IL1A	
Interleukin(IL) 1, beta	IL1B	Į
Interleukin(IL) 10	IL10	ĺ
Interleukin(IL) 10 receptor	IL10R	i
Interleukin(IL) 11	IL11	i
Interleukin(IL) 11 receptor	IL11R	i
Interleukin(IL) 12	IL12	i
Interleukin(IL) 12 receptor, beta 1	IL12RB1	i
Interleukin(IL) 13	IL13	i
Interleukin(IL) 13 receptor	IL13R	i
Interleukin(IL) 2	IL2	i
Interleukin(IL) 2 receptor, alpha	IL2RA	i
Interleukin(IL) 2 receptor, gamma	IL2RG	i
Interleukin(IL) 3	IL3	i
Interleukin(IL) 3 receptor	IL3R	i
Interleukin(IL) 4	IL4	; ;
Interleukin(IL) 4 receptor	IL4R	1
Interleukin(IL) 5	IL5	
Interleukin(IL) 5 receptor	IL5R	i
Interleukin(IL) 6	IL6	i
Interleukin(IL) 6 receptor	IL6R	
Interleukin(IL) 7	IL7	i
Interleukin(IL) 7 receptor	IL7R	i
Interleukin(IL) 8	IL8	1
Interleukin(IL) 8 receptor	IL8R	· 1
Interleukin(IL) 9	IL9	i
Interleukin(IL) 9 receptor	IL9R	i
Interleukin(IL) receptor antagonist 1	IL1RN, IL1RA	i
IP3 kinase	iena, iena	Ë
Kallikrein 3	KAK3	Ī
Kininogen, High molecular weight	KNG	i
Kynureninease	M	Ė
Laminin 5, alpha 3	LAMA3	G
Laminin 5, alpha 3	LAMB3	G
•	LAMC2	G
Laminin 5, gamma 2 Laminin M	LAMM	G
	LAMR1	G
Laminin receptor 1	LTBP2	G
Latent transforming growth factor-beta	LIDEZ	G
binding protein 2	LEP	_
Leptin	LEPR	G
Leptin receptor	LEFR	G I
Leukin		1

Leukocyte-specific transcript 1	LST-1	ļ
Leukotriene A4 hydrolase	LTA4S	1
Leukotriene A4 synthase	LIA45	E
Leukotriene B4 receptor	LTB4S	-
Leukotriene B4 synthase	L1643	E
Leukotriene C4 receptor	LTC4S	I E
Leukotriene C4 synthase Leukotriene D4/E4 receptor	L1043	_
LIM homeobox protein 1	LHX1	l G
LIM-Kinase I (LINK-I)	LIXI	ı
Lipocortin 1	ANX4	1
Lipoprotein lipase	LPL	i
Lipoprotein receptor, Low Density	LDLR	Ť
Lipoprotein, High Density	HDLDT1	Ť
Lipoprotein, Intermediate Density		Ť
Lipoprotein, Low Density 1		Ť
Lipoprotein, Low Density 2		T
Lipoprotein, Very Low Density	VLDLR	Т
Lipoprotein-associated coagulation factor	LACI	1
Low density lipoprotein receptor-related	LRP .	Т
protein precursor		
Lymphoid enhancer-binding factor	LEF-1	G
MAD (mothers against decapentaplegic,	MADH4	G
Drosophila) homologue 4		
Malonyl CoA decarboxylase		Ε
Mannosidase, alpha B lysosomal	MANB	E
Mannosidase, beta A lysosomal	MANBA	E
Methionine synthase	MTR	EEE
Methylmalonyl-CoA mutase	MUT	E
Mevalonate kinase	MVK	
Mismatch repair gene, PMSL2	PMS2	G
Molybdenum cofactor synthesis 1	MOCS1	E
Molybdenum cofactor synthesis 2	MOCS2	Ε
Monoamine oxidase A	MAOA	E
Monoamine oxidase B	MAOB	E
Mucolipidoses	GNPTA	N
Muscarinic receptor, M1	CHRM1 CHRM2	N
Muscarinic receptor, M2	CHRM3	N
Muscarinic receptor, M3	CHRM4	N
Muscarinic receptor, M4	CHRM5	N
Muscarinic receptor, M5	CHRIVIS	S
Myelin basic protein N-acetylglucosamine-6-sulfatase	GNS	E
N-acetylglucosaminidase, alpha	NAGLU	E
NADPH-dependent cytochrome P450	POR	E
reductase	, 0,,	
NB6		1
Nerve growth factor	NGF	Ġ
· - g · · · · · · · · · · · · · · · · · ·		_

None and the factor of the factor	NOED	_
Nerve growth factor receptor	NGFR	G
Neurite inhibitory protein		Ν
Neurofibromin 1	NF1	G
Neurofibromin 2	NF2	G
Neurofilament protein, NF125	NF150	S
Neurofilament protein, NF200	NF200	S
Neurofilament protein, NF68	NF68	S
Neurokinin A	NKNA	Ν
Neurokinin B	NKNB	Ν
Neuropeptide Y	NPY	Ν
Neuropeptide Y receptor Y1	NPY1R	N
Neuropeptide Y receptor Y2	NPY2R	N
Nitric oxide synthase 1, NOS1	NOS1	E
Nitric oxide synthase 2, NOS2	NOS2	E
Nitric oxide synthase 3, NOS3	NOS3	Ē
Notch 3	NOTCH3	G
Notch ligand - jagged 1	JAG1, AGS	G
Nuclear factor I-kappa-B-like gene	IKBL	1
Nucleoside diphosphate kinase-A	NDPKA	Ė
Oncogene bcl2	1101	G
Oncogene sis	PDGFB	G
Ornithine delta-aminotransferase	OAT	E
	OTC, NME1	E
Ornithine transcarbamoylase	OTX1	
Orthodenticle (Drosophila) homolog 1	OTX2	G
Orthodenticle (Drosophila) homolog 2		G
Patched (Drosophila) homolog, PTCH	PTCH	G
Peroxisomal membrane protein 1	PXMP1	S
Peroxisomal membrane protein 3	PXMP3	T
Peroxisome biogenesis factor 1	PEX1	T
Peroxisome biogenesis factor 19	PEX19	T
Peroxisome biogenesis factor 6	PEX6	T
Peroxisome biogenesis factor 7	PEX7	Ţ
Peroxisome receptor 1	PXR1	T
Persyn .		S
Phosphoglucose isomerase	GPI	Ε
Phosphoglycerate kinase 1	PGK1	E
Phospholipase A2, group 10	PLA2G10	1
Phospholipase A2, group 1B	PLA2G1B	I
Phospholipase A2, group 2A	PLA2G2A	1
Phospholipase A2, group 2B	PLA2G2B	1
Phospholipase A2, group 4A	PLA2G4A	1
Phospholipase A2, group 4C	PLA2G4C	1
Phospholipase A2, group 5	PLA2G5	f
Phospholipase A2, group 6	PLA2G6	١
Phospholipase C alpha		i
Phospholipase C beta		i
Phospholipase C delta	PLCD1	i
Phospholipase C epsilon		i
the state of the s		•

Phospholipase C gamma Phosphomannomutase 2 Plasminogen Plasminogen activator inhibitor 1 Plasminogen activator inhibitor 2 Plasminogen activator receptor, Urokinase Plasminogen activator, Tissue Plasminogen activator, Urokinase Platelet derived growth factor Platelet derived growth factor Platelet glycoprotein 1b, alpha Platelet glycoprotein 1b, beta Platelet glycoprotein 1b, gamma Platelet glycoprotein IX Platelet glycoprotein V Platelet-activating factor acetylhydrolase 1B	PLCG1 PMM2 PLG PAI1 PAI2 UPAR; PLAUR PLAT; TPA UPA; PLAU PDGF PDGFR GP1BA GP1BB GP1BG GP9 GP5 PAFAH1B1 or LIS1	1 GEEESEEGG
Platelet-activating factor acetylhydrolase 2 Platelet-activating factor receptor Plectin 1 Polycystin 1 Polycystin 2 Potassium inwardly-rectifying channel J1 Potassium voltage-gated channel E1 Potassium voltage-gated channel Q1 Potassium voltage-gated channel Q2 Potassium voltage-gated channel Q3 POU domain, class 1, transcription factor 1 (Pit1)	PAFAH2 PAFR PLEC1 PKD1 PKD2 KCNJ1 KCNE1 KCNQ1 KCNQ2 KCNQ3 POU1F1	
Prekallikrein Prion protein Procollagen N-protease Proline dehydrogenase Proopiomelanocortin Prostacyclin synthase Prostaglandin 15-OH dehydrogenase Prostaglandin D - DP receptor Prostaglandin E1 receptor Prostaglandin E2 receptor	PRNP PRODH POMC HGPD; PGDH	- Z M M Z
Prostaglandin E3 receptor Prostaglandin F - FP receptor Prostaglandin I2 receptor Prostaglandin IP receptor Protective protein for beta-galactosidase Protein C Protein C inhibitor Protein kinase C, alpha Protein kinase C, gamma	PPGB PROC PCI PRKCA PRKCG	T

Protein kinase G Protein phosphatase 1, regulatory (inhibitor)	PPP1R3	E
subunit 3		
Protein S	PROS1	1
Prothrombin precursor	F2	- 1
Purine nucleoside phosphorylase	NP	Ε
Pyrroline-5-carboxylate synthetase	PYCS	E
Pyruvate carboxylase	PC	E
Ras-G-protein	RAS	G
Renin	REN	٠E
Replication factor C	RFC2	Е
RIGUI	RIGUI	G
S100 calcium-binding protein A1	S100A1	N
S100 calcium-binding protein A2	S100A2	Ν
S100 calcium-binding protein A3	S100A3	N
S100 calcium-binding protein A4	S100A4	N
S100 calcium-binding protein A5	S100A5	N
S100 calcium-binding protein A6	S100A6	N
S100 calcium-binding protein A7	S100A7	N
S100 calcium-binding protein A8	S100A8	N
S100 calcium-binding protein A9	S100A9	N
S100 calcium-binding protein As	S100A3	N
S100 calcium-binding protein B	S100B S100P	N
<u> </u>	31001	N
Secretase, alpha		N
Secretase, beta		N
Secretase, gamma Selectin E	SELE	N
Selectin L	SELL	N
	SELP	N
Selectin P	SNAT	E
Serotonin N-acetyltransferase	HTR1A	N
Serotonin receptor, 5HT1A	HTR1B	N
Serotonin receptor, 5HT1B	HTR1C	N
Serotonin receptor, 5HT1C		
Serotonin receptor, 5HT1D	HTR1D	N
Serotonin receptor, 5HT1E	HTR1E	N
Serotonin receptor, 5HT1F	HTR1F	N
Serotonin receptor, 5HT2A	HTR2A	N
Serotonin receptor, 5HT2B	HTR2B	N
Serotonin receptor, 5HT2C	HTR2C	N
Serotonin receptor, 5HT3	HTR3	N
Serotonin receptor, 5HT4	HTR4	N
Serotonin receptor, 5HT5	HTR5	N
Serotonin receptor, 5HT6	HTR6	N
Serotonin receptor, 5HT7	HTR7	N
Sodium channel, non-voltage gated 1, alpha	SCNN1A	N
Sodium channel, non-voltage gated 1, beta	SCNN1B	N
Sodium channel, non-voltage gated 1,	SCNN1G	Ν
gamma	•	

	Sodium channel, voltage-gated, type 1, beta polypeptide	SCN1B	N
	Solute carrier family 1 (glutamate transporter), member 1	SLC1A1	T
	Solute carrier family 1 (glutamate transporter), member 2	SLC1A2	Т
	Solute carrier family 12, member 1	SLC12A1	Т
	Solute carrier family 12, member 2	SLC12A2	Ť
	Solute carrier family 12, member 2	SLC12A3	
		SLC12A3 SLC16A1	T
	Solute carrier family 16 (monocarboxylate	SECTOAT	T
	transporter), member 1	CL C46A7	
	Solute carrier family 16 (monocarboxylate	SLC16A7	T
	transporter), member 7	01 04040	_
	Solute carrier family 18, member 3	SLC18A3	T
	Solute carrier family 2 (facilitated glucose	SLC2A1	T
	transporter), member 1		
	Solute carrier family 20, member 3	SLC20A3	T
	Solute carrier family 5 (sodium/glucose	SLC5A1	T
	transporter), member 1		
	Solute carrier family 5 (sodium/glucose	SLC5A2	T
	transporter), member 2		
	Solute carrier family 5 (sodium/glucose	SLC5A5	Т
	transporter), member 5		
	Solute carrier family 5, member 3	SLC5A3	T
	Solute carrier family 6 (GAMMA-	SLC6A1	T
	AMINOBUTYRIC ACID transporter), member		
	1		
	Solute carrier family 6 (neurotransmitter	SLC6A3	Т
•	transporter, dopamine), member 3		
	Solute carrier family 6 (neurotransmitter	SLC6A2	T
	transporter, noradrenaline), member 2		•
	Solute carrier family 6 (neurotransmitter	SLC6A4	Т
	transporter, serotonin), member 4	32307.1	•
	Solute carrier family 7(amino acid	SLC7A1	Т
	transporter), member 1	323771	•
	Solute carrier family 7(amino acid	SLC7A2	Т
	transporter), member 2	GEOTAZ	•
		SLC7A7	Т
	Solute carrier family 7(amino acid	SECTAT	ı
	transporter), member 7	SMDD4	_
	Sphingomyelinase	SMPD1	E
	Spinocerebellar ataxia 8 gene	SCA8	N
	Steroid 5 alpha reductase 1	SRD5A1	E
	Steroid 5 alpha reductase 2	SRD5A2	E
	Substance P		N
	Succinic semi-aldehyde dehydrogenase	ssadh	E
	Sulfamidase	SGSH	G
	Sulfite oxidase	SUOX	Ε
	Superoxide dismutase 1	SOD1	Ε

O diamutana 2	60D3	_
Superoxide dismutase 3	SOD3 SURF1	E G
Surfeit 1	SYN1	N
Synapsin 1a & 1b	SYN2	N
Synapsin 2a & 2b	SVAT .	N
Synaptic vesicle amine transporter	SYB1	N
Synaptobrevin 1	SYB2	N
Synaptobrevin 2	3182	N
Synaptogyrin	SYP	N
Synaptophysin Synaptotagmin 1	SYT1	N
Synaptotagmin 1	SYT2	N
Synaptotagmin 2	STX1	N
Syntaxin 1 Talin	TLN	G
	MAPT	S
Tau protein TEK, tyrosine kinase, endothelial	TEK	E
Telomerase protein component		E
Thrombin receptor	F2R	Ī
Thrombopoietin	THPO	Ġ
Thromboxane A synthase 1	TBXAS1	ı
Thromboxane A2	TXA2	i
Thromboxane A2 receptor	TBXA2R	i
Thyroxin-binding globulin	TBG	Т
Topoisomerase I		E
Transforming growth factor, beta 2	TGFB2	G
Transforming growth factor, beta receptor 2	TGFBR2	G
Tuberous sclerosis 1	TSC1	G
Tuberous sclerosis 2	TSC2	G
Tumour necrosis factor (TNF) receptor	TRAF1	1
associated factor 1		
Tumour necrosis factor (TNF) receptor	TRAF2	1
associated factor 2		
Tumour necrosis factor (TNF) receptor	TRAF3	1
associated factor 3	•	
Tumour necrosis factor (TNF) receptor	TRAF4	ı
associated factor 4		
Tumour necrosis factor (TNF) receptor	TRAF5	1
associated factor 5		
Tumour necrosis factor (TNF) receptor	TRAF6	1
associated factor 6		
Tumour necrosis factor alpha	TNFA	1
Tumour necrosis factor alpha receptor	TNFAR	1
Tumour necrosis factor beta	TNFB	l
Tumour necrosis factor beta receptor	TNFBR	
Tumour protein p53	TP53, P53	G
Tumour protein p63	TP63	G
Tyrosine aminotransferase	TAT	E
Tyrosine hydroxylase	TH	E
Ubiquitin		G

Ubiquitin B	UBB	G
Ubiquitin C	UBC	G
Ubiquitin carboxyl-terminal esterase L1	UCHL1	G
UDP-glucuronosyltransferase 1	ugt1d, UGT1	E
UDP-glucuronosyltransferase 2	UGT2	E
Undulin 1	COL14A1	S
Uridinediphosphate(UDP)-galactose-4-	GALE	E
epimerase		
Uroporphyrinogen III synthase	UROS	Ε
Vacuolar proton pump, subunit 1	VPP1	Ν
Vacuolar proton pump, subunit 3	VPP3	Ν
Vasoactive intestinal polypeptide	VIP	Ν
Vasoactive intestinal polypeptide receptor	VIPR	Ν
Von Hippel-Lindau gene	VHL	G
Wolf-Hirschhorn syndrome candidate 1 gene	WHSC1	G
Xanthine dehydrogenase	XDH	E
Zinc finger protein 2	ZIC2	S

- 141. A set of probes, said probes being antibodies or antibody fragments which interact with specific expressed proteins encoded by gene sequences of a group of genes, said probes being for detecting relevant variants (mutations and polymorphisms), e.g. nucleotide substitutions (missense, nonsense, splicing and regulatory), small deletions, small insertions, small insertion deletions, gross insertions, gross deletions, duplications, complex rearrangements and repeat variations in a target group of genes; characterised in that said group is a core group of genes consisting of substantially all of the genes defined in claim 140.
- 142. A set according to claim 140 or 141 in which a minority of said probes for listed genes are absent.
- 143. A set according to claim 140 or 141 in which a limited number of additional probes are present together with substantially all of the probes for the listed genes.
- 144. A set according to claim 140 or 141 in which a limited number of probes are replaced by probes for non-listed genes.
- 145. A set of probes for a core group of genes according to any of claims 140 to 144 in which each gene to be probed is substantially similar (greater than 85% homologous) in sequence to the respective member of the core list of genes.
- 146. A set according to any of claims 140 to 145 consisting of probes for members of a sub-group of the core group.
- 147. A set according to any preceding claim in which said probes are in the form of an array and are spatially arranged at known locations on a substrate.
- 148. A set according to any preceding claim wherein said probes are on a substrate which forms part of or consists of one or more chip plate(s), for use in a chip assay for detection of said gene variants.

- 149. A set according to any preceding claim in which said probes are mass, electrostatic or fluorescence tagged probes.
- 150. A set according to claim 147 or 148 in which said substrate is a semiconductor microchip.
- 151. A set according to any preceding claim for use in a biological assay for detection of said gene variants.
- 152. A set according to any preceding claim for use in the measurement of differential gene expression levels.
- 153. A medical device including a set according to any preceding claim for use in an assay for detection of said gene variants.
- 154. A medical device including a set according to any of claims 140 to 152 for use in an array for detection of differential gene expression levels.
- 155. A method for use in assessing the genomic profile of a patient or individual, the method comprising testing for and detecting the presence or absence of DNA or RNA encoding the relevant structural variants (as defined in claim 140) in a target group of genes by hybridising a nucleic acid-containing sample from said patient or individual to a set according to any of claims 140 and 142 to 152 and relating the probe hybridisation pattern to said variations.
- 156. A method for use in assessing the the genomic profile of a patient or individual, the method comprising testing for and detecting the presence or absence of DNA or RNA encoding the relevant structural variants (as defined in claim 141) in a target group of genes by interacting an expressed-protein-containing sample from said patient or individual with a set of probes according to any of claims 141 to 152 and relating the probe interaction pattern to said variations.
- 157. Use of a set or device according to any of claims 140 to 152 for the prognosis and management of patients suffering from or at risk of clinical, psychological and social consequences of brain injury.
- 158. Use of a set or device according to any of claims 140 to 152 for predicting likely therapeutic response and adverse events following therapeutic intervention.
- 159. Use of a set or device according to any of claims 140 to 152 for predicting likely therapeutic response and adverse events following the intake of a specific drug.
- 160. Use of a set or device according to any of claims 140 to 152 for predicting likely patterns of symptom clusters (symptom profiles) in disease and the likelihood of subsequent, contingent, disease or symptoms.
- 161. Use of a set or device according to any of claims 140 to 152 for general health screening, occupational health purposes, healthcare planning on a population basis and other healthcare management utilisations.
- 162. Use of a set or device according to any of claims 140 to 152 for the development of new strategies of therapeutic intervention and in clinical trials.
- 163. Use of a set or device according to any of claims 140 to 152 for construction of and generation of algorithms for patient and healthcare management.
- 164. Use of a set or device according to any of claims 140 to 152 for modelling or assessing the impact of diseases or healthcare management strategies on individuals, groups, patient cohorts or populations

- 165. Use of a set or device according to any of claims 140 to 152 for modelling, assessing or exploring the theoretical impact of diseases and healthcare management strategies on individuals, groups, patient cohorts or populations.
- 166. Use of a set or device according to any of claims 140 to 152 for predicting optimum configuration/management of thereapeutic intervention.
- 167. A method according to claim 155 or 156 in which the identification of gene variants is indicative of a higher risk of developing clinical, psychological and social consequences of brain injury for the patient or individual.
- 168. A method for generating a model to assess whether a patient or individual or population or group is or are likely to develop clinical, psychological and social consequences of brain injury, which method comprises:
- i) obtaining DNA or RNA or protein samples from patients or individuals diagnosed as suffering from clinical, psychological and social consequences of brain injury;
- obtaining DNA or RNA or protein samples from a control group of subjects diagnosed as not suffering from the clinical, psychological and social consequences of brain injury;
- iii) analysing the samples obtained in i) and ii) to identify the polymorphic variations encoded in the core group of genes as defined in any of claims 140 to 146;
- iv) calculating the frequencies of these alleles in the samples from i) and ii);
- v) comparing the frequencies of these alleles in i) and ii);
- vi) performing a statistical analysis on the results from v) in order to generate a model for assessing the risk of developing clinical, psychological and social consequences of brain injury.
- 169. A method for assessing whether a given subject will be at risk of developing clinical, psychological and social consequences of brain injury, which comprises comparing said subject's genotype with a model generated by the method of claim 168.
- 170. A method according to any of claims 155, 156, 168 and 169 wherein at least one step is computer-controlled.
- 171. An assay suitable for use in a method according to any of claims 155, 156, 168 and 169; said assay comprising means for determining the presence or absence of relevant polymorphic variants of the core group of genes as defined in any of claims 140 to 146 in a biological sample.
- 172. A formatted assay technique (kit) for use in assessing the risk of a patient or individual developing clinical, psychological and social consequences of brain injury; said kit comprising:
 - i) means for testing for the presence or absence or DNA or RNA encoding relevant polymorphic variants of the core group of genes as defined in claim 140 or 142 to 146 in a sample of human DNA;
 - ii) reagents for use in the detection process
 - iii) readout indicating the probability of a patient or individual developing clinical, psychological and social consequences of brain injury.
- 173. A formatted assay technique (kit) for use in assessing the risk of a patient or individual developing clinical, psychological and social consequences of brain injury; said kit comprising:

- i) means for testing for the presence or absence of proteins encoded by the core group of genes and/or relevant polymorphic variants of the core group of genes as defined in any of claims 141 to 146 in an expressed-protein-containing human sample;
- ii) reagents for use in the detection process
- readout indicating the probability of a patient or individual developing clinical, psychological and social consequences of brain injury.
- 174. A set of probes according to claim 140, wherein the probes are selected from the group consisting of oligonucleotides and polynucleotides.
- 175.A set of nucleotide probes for detecting relevant variants (mutations and polymorphisms), e.g. nucleotide substitutions (missense, nonsense, splicing and regulatory), small deletions, small insertions, small insertion deletions, gross insertions, gross deletions, duplications, complex rearrangements and repeat variations in a target group of genes which relate to dementia and/or its associated symptoms; said probes being complementary to DNA and RNA sequences of said group of genes; characterised in that said group is a core group of genes consisting of substantially all of the following:

KEY TO 'PROTEIN FUNCTION' COLUMN

- E ENZYME
- T TRANSPORT & STORAGE
- S STRUCTURAL
- I IMMUNITY
- N NERVOUS TRANSMISSION
- G GROWTH & DIFFERENTIATION

DEMENTIA GENE LIST	HUGO gene symbol	Protein function
2,3-bisphosphoglycerate mutase	BPGM	E
3 beta hydroxysteroid dehydrogenase 2	HSD3B2	E
5,10-methylenetetrahydrofolate reductase (NADPH)	MTHFR	Е
Acetylcholine receptor, nicotinic, alpha A1	CHRNA1	N
Acetylcholine receptor, nicotinic, alpha A2	CHRNA2	N
Acetylcholine receptor, nicotinic, alpha A3	CHRNA3	N
Acetylcholine receptor, nicotinic, alpha A4	CHRNA4	N
Acetylcholine receptor, nicotinic, alpha A5	CHRNA5	N
Acetylcholine receptor, nicotinic, alpha A6	CHRNA6	N
Acetylcholine receptor, nicotinic, alpha A7	CHRNA7	N
Acetylcholine receptor, nicotinic, beta 1	CHRNB1	N
Acetylcholine receptor, nicotinic, beta 2	CHRNB2	N
Acetylcholine receptor, nicotinic, beta 3	CHRNB3	. N
Acetylcholine receptor, nicotinic, beta 4	CHRNB4	N
Acetylcholine receptor, nicotinic, epsilon	CHRNE	N
Acetylcholine receptor, nicotinic, gamma	CHRNG	N
Acetylcholinesterase	ACHE	Ε

Adducin, alpha Adducin, beta Adenosine receptor A1 Adenosine receptor A2A Adenosine receptor A2B Adenosine receptor A3 Adenylate cyclase 1 Adenylate cyclase 2 Adenylate cyclase 3 Adenylate cyclase 4 Adenylate cyclase 5 Adenylate cyclase 6 Adenylate cyclase 7	ADD1 ADD2 ADORA1 ADORA2A ADORA2B ADORA3 ADCY1 ADCY2 ADCY3 ADCY4 ADCY5 ADCY6 ADCY7	887777
Adenylate cyclase 8 Adenylate cyclase 9 Adrenergic receptor, alpha1	ADCY8 ADCY9 ADRA1	E E N
Adrenergic receptor, alpha2 Adrenergic receptor, beta1 Adrenergic receptor, beta2 Adrenergic receptor, beta3 Adrenocorticotrophic hormone (ACTH)	ADRA2 ADRB1 ADRB2 ADRB3 ACTHR	N N N N N G
receptor Albumin, ALB Aldosterone receptor Alpha 2 macroglobulin alpha1-antitrypsin alpha2-antiplasmin alpha-synuclein Aminopeptidase P Amyloid beta (A4) precursor protein-binding, APBB1	ALB MLR A2M PI PLI SNCA XPNPEP2 APBB1	TG-EEZEZ
Amyloid beta A4 precursor protein Amyloid beta A4 precursor-like protein Angiopoietin 1 Angiopoietin 2 Angiotensin converting enzyme Angiotensin receptor 1 Angiotensin receptor 2 Angiotensinogen Antidiuretic hormone receptor Antithrombin III Apolipoprotein A I Apolipoprotein A II Apolipoprotein B Apolipoprotein C1 Apolipoprotein C2 Apolipoprotein C3 Apolipoprotein D	APP APLP ANGPT1 ANGPT2 ACE, DCP1 AGTR1 AGTR2 AGT ADHR AT3 APOA1 APOA2 APOB APOC1 APOC2 APOC3 APOD	NNGGETTETETTTTT

_		
Apolipoprotein E	APOE	T
Apolipoprotein H	APOH	T
Apoptosis antigen 1	APT1	1
Arginase	ARG1	Ε
Arginine vasopressin	AVP	N
Arginine vasopressin receptor 1A	AVPR1A	N
Arginine vasopressin receptor 1B	AVPR1B	N
Arginine vasopressin receptor 2	AVPR2	N
•	ASL	
Arginosuccinate lyase		E
Arginosuccinate synthetase	ASS	E
Ataxia telangiectasia gene, AT	ATM	G
ATP/ADP translocase		E
Atrial natriuretic peptide	ANP	G
Atrial natriuretic peptide receptor A	NPR1	G
Atrial natriuretic peptide receptor B	NPR2	G
Atrial natriuretic peptide receptor C	NPR3	G
Bagpipe homeobox, drosophila homolog of, 1	BAPX1	G
beta-synuclein	SNCB	Ν
Bleomycin hydrolase	BLMH	Ε
Bradykinin receptor B1		ı
Bradykinin receptor B2		i
Brain derived neurotrophic factor	BDNF	Ġ
Brain derived neurotrophic factor (BDNF)	BDNFR	G
receptor		Ü
Butyrylcholinesterase	BCHE	Ε
Cadherin E	CDH1	G
Cadherin EP	OBITI	G
Cadherin N	CDH2	G
Cadherin P	CDH3	G
Calbindin 1	CALB1	G
Calbindin 19K	CALB3	G
		G
Calcineurin A1	CALNA1	- !
Calcineurin A2	CALNA2	
Calcineurin A3	CALNA3	!
Calcineurin B		1
Calcitonin/Calcitonin gene-related peptide	CALCA	N
alpha		
Calcium channel, voltage-dependent, alpha 1F	CACNA1F	Ν
subunit	•	
Calcium channel, voltage-dependent, Alpha-	CACNA1B	Ν
1B (CACNL1A5)		
Calcium channel, voltage-dependent, Alpha-	CACNA1C	Ν
1C		
Calcium channel, voltage-dependent, Alpha-	CACNA1D	N
1D		
Calcium channel, voltage-dependent, Alpha-	CACNA1E	Ν
1E (CACNL1A6)		. •
Calcium channel, voltage-dependent, Alpha-	CACNA2	Ν
, J		

2/delta		
Calcium channel, voltage-dependent, Beta 1	CACNB1	Ν
Calcium channel, voltage-dependent, Beta 3	CACNB3	Ν
Calcium channel, voltage-dependent, L type,	CACNA1S	Ν
alpha 1S subunit		
Calcium channel, voltage-dependent,	CACNG2	Ν
Neuronal, Gamma		
Calcium channel, voltage-dependent, P/Q	CACNA1A	Ν
type, alpha 1A subunit		
Calcium channel, voltage-dependent, T-type		Ν
Calmodulin 1	CALM1	G
Calmodulin 2	CALM2	G
Calmodulin 3	CALM3	G
Calmodulin-dependant protein kinase II	CAMK2A	G
Calnexin	CANX	G
Calpain	CAPN, CAPN3	Ε
Calretinin	CALB2	Ν
Carbonic anhydrase 3	CA3	Ε
Carbonic anhydrase 4	CA4	E
Carbonic anhydrase, alpha	CA1	Ε
Carbonic anhydrase, beta	CA2	Ε
Cardiac-specific homeobox, CSX	CSX	G
Caspase 1	CASP1	G
Caspase 10	CASP10	G
Caspase 2	CASP2	G
Caspase 3	CASP3	G
Caspase 4	CASP4	G
Caspase 5	CASP5	Ģ
Caspase 6	CASP6	G
Caspase 7	CASP7	G
Caspase 8	CASP8	G
Caspase 9	CASP9	G
Catechol-O-methyltransferase	COMT	Ε
CD1	CD1	1
CD4	CD4	1
Cell adhesion molecule, intercellular, ICAM	ICAM1	G
Cell adhesion molecule, leukocyte-endothelial,	LECAM1	G
LECAM (CD62)		
Cell adhesion molecule, liver, LCAM	LCAM	G
Cell adhesion molecule, neural, NCAM1	NCAM1	G
Cell adhesion molecule, neural, NCAM120	NCAM120	G
Cell adhesion molecule, neural, NCAM2	NCAM2	G
Cell adhesion molecule, platelet-endothelial,	PECAM1	Ģ
PECAM		
Cell adhesion molecule, vascular, VCAM	VCAM1	G
Chemokine receptor CXCR4	CXCR4	l
Choline acetyltransferase	CHAT	Ε
Chymotrypsinogen		Ε

Cockayne syndrome gene, CKN1	CKN1	G
Cofilin		S
Collagen I alpha 1	COL1A1	S
Collagen I alpha 2	COL1A2	S
Collagen II aipha 1	COL2A1	S
Collagen III alpha 1	COL3A1	S
Collagen IV alpha 1	COL4A1	S
Collagen IV alpha 2	COL4A2	S
Collagen IV alpha 3	COL4A3	
Collagen IV alpha 4	COL4A4	S S S
Collagen IV alpha 5	COL4A5	S
Collagen IV alpha 6	COL4A6	S
Collagen IX alpha 2	COL9A2, EDM2	S
Collagen IX alpha 3	COL9A3	S
Collagen receptor	COLR	S
Collagen V alpha 1	COL5A1	S
Collagen V alpha 2	COL5A2	S
Collagen VI alpha 1	COL6A1	S
Collagen VI alpha 2	COL6A2	S
Collagen VI alpha 3	COL6A3	S
Collagen VII alpha 1	COL7A1	S
Collagen X alpha 1	COL10A1	S
Collagen X alpha 1	COL11A1	S
Collagen XI alpha 2	COL11A2	S
Collagen XVII alpha 1	COL17A1	S
Corticotrophin-releasing hormone	CRH	Т
Corticotrophin-releasing hormone receptor	CRHR1	Т
Cu2+ transporting ATPase beta polypeptide	ATP7B	Ε
Cyclic AMP-dependent protein kinase	PKA	E
Cyclic nucleotide phosphodiesterase 2A3	PDE2A3	E
Cyclic nucleotide phosphodiesterase 3A	PDE3A	Ε
Cyclic nucleotide phosphodiesterase 3B	PDE3B	E
Cyclic nucleotide phosphodiesterase 4A	PDE4A	Е
Cyclic nucleotide phosphodiesterase 4C	PDE4C	E
Cyclic nucleotide phosphodiesterase 5A	PDE5A	Ε
Cyclic nucleotide phosphodiesterase 6A	PDE6A	Ε
Cyclic nucleotide phosphodiesterase 6B	PDE6B	Ε
Cyclic nucleotide phosphodiesterase 7	PDE7	Ε
Cyclic nucleotide phosphodiesterase 8	PDE8	Ε
Cyclic nucleotide phosphodiesterase 9A	PDE9A	E
Cyclooxygenase 1	COX1	Ε
Cyclooxygenase 2	COX2	E
CYP11A1	CYP11A1	E
CYP11B1	CYP11B1	Ε
CYP11B2	CYP11B2	Ε
CYP17	CYP17	E
CYP19	CYP19	Ε
CYP1A1	CYP1A1	Ε

CYP1A2	CYP1A2	Ε
CYP1B1	CYP1B1	Ε
CYP21	CYP21	E
CYP24	CYP24	E
CYP27	CYP27	Ē
CYP27B1	PDDR	E
CYP2A1	CYP2A1	E
CYP2A13	CYP2A13	Ε
CYP2A3	CYP2A3	Ε
CYP2A6V2	CYP2A6V2	Ε
CYP2A7	CYP2A7	Ε
CYP2B6	CYP2B6	Ε
CYP2C18	CYP2C18	E
CYP2C19	CYP2C19	E
CYP2C8	CYP2C8	E
CYP2C9	CYP2C9	E
CYP2D6	CYP2D6	Ε
CYP2E1	CYP2E1	E
CYP2F1	CYP2F1	Ē
CYP2J2	CYP2J2	E
CYP3A3	CYP3A3	E
CYP3A4	CYP3A4	E
CYP3A5	CYP3A5	E
	CYP3A7	E
CYP3A7		E
CYP4A11	CYP4A11	
CYP4B1	CYP4B1	E
CYP4F2	CYP4F2	E
CYP4F3	CYP4F3	E
CYP51	CYP51	E
CYP5A1	CYP5A1	Ε
CYP7A	CYP7A	E
CYP8	CYP8	Ε
Cystathione beta synthase	CBS	Ε
Cystatin C	CST3	T
Cystinosin	CTNS	T
Cytidine-5-prime-triphosphate synthetase	CTPS	E
Cytochrome a		Ε
Cytochrome b-245 alpha	CYBA	Ε
Cytochrome b-245 beta	CYBB	Ε
Cytochrome c		E
Cytochrome c oxidase, MTCO		F
Dihydrolipoyl succinyltransferase	DLST	E E
Dopamine beta hydroxylase	DBH	E
Dopamine receptors D1	DRD1	N
Dopamine receptors D1 Dopamine receptors D2	DRD2	N
· · · · ·		
Dopamine receptors D3	DRD3	N
Dopamine receptors D4	DRD4	N
Dopamine receptors D5	DRD5	N

Doublecortin, DCX Emerin Endothelin 1 Endothelin 2 Endothelin 3 Endothelin converting enzyme Endothelin receptor type A Endothelin receptor type B Enolase Epidermal growth factor Epidermal growth factor receptor Epilepsy, progressive myoclonic 2 gene Excision repair complementation group 4 protein	DCX EMD EDN1 EDN2 EDN3 ECE1 EDNRA EDNRB ENO1 EGF EGFR EPM2A ERCC4	9 T Z Z Z Z Z E G G E E
Factor 1 (No. one)	F1	1
Factor III	F3	I
Factor IX	F9 F5	- !
Factor VII	F7	1
Factor VIII	F8	i
Factor X	F10	i
Factor XI	F11	1
Factor XII	F12	1
Factor XIII A & B	F13A & F13B	-
Fanconi anemia, complementation group A	FANCA	T
Fibrinogen alpha	FGA	S
Fibrinogen beta	FGB	S S
Fibrinogen gamma	FGG	S
Fibroblast growth factor	FGF1	G
Fibroblast growth factor receptor 1	FGFR1	G
Fibroblast growth factor receptor 2	FGFR2	G
Fibroblast growth factor receptor 3 Fibronectin precursor	FGFR3 FN1	G G
Follicle stimulating hormone receptor	FSHR, ODG1	_
Follicle stimulating hormone, FSH	FSHB	G G
GABA receptor, alpha 1	GABRA1	N
GABA receptor, alpha 2	GABRA2	N
GABA receptor, alpha 3	GABRA3	N
GABA receptor, alpha 4	GABRA4	N
GABA receptor, alpha 5	GABRA5	Ν
GABA receptor, alpha 6	GABRA6	Ν
GABA receptor, beta 1	GABRB1	Ν
GABA receptor, beta 2	GABRB2	Ν
GABA receptor, beta 3	GABRB3	N
GABA receptor, gamma 1	GABRG1	N
GABA receptor, gamma 2	GABRG2	N
GABA transaminase	GABRG3	N
GABA transaminase	ABAT	Ε

Ga Ga Ga	alactosyltransferase 1 alactosyltransferase, alpha 1,3 alactosyltransferase, beta 3 astric Intrinsic factor, GIF ial-cell derived neurotrophic factor (GDNF)	GT1 GGTA1 B3GALT GIF	GGGEN
Glii Glii Glii Glii Glii Glii Glii Glii	ial-cell derived neurotrophic factor, GDNF utamate decarboxylase, GAD utamate receptor 1 utamate receptor 2 utamate receptor 3 utamate receptor 4 utamate receptor 5 utamate receptor 6 utamate receptor 7 utamate receptor, ionotropic, NMDA 1 utamate receptor, ionotropic, NMDA 2A utamate receptor, ionotropic, NMDA 2B utamate receptor, ionotropic, NMDA 2C utamate receptor, ionotropic, NMDA 2C utamate receptor, ionotropic, NMDA 2C utamate receptor, ionotropic, NMDA 2D utaryl-CoA dehydrogenase utathione utathione utathione S-transferase, GSTZ1 yceraldehyde-3-phosphate dehydrogenase,	GDNF GAD1 GLUR1 GLUR2 GLUR3 GLUR4 GLUR5 GLUR6 GLUR7 NMDAR1 NMDAR2A NMDAR2B NMDAR2C NMDAR2C NMDAR2D GCDH GSH GSTZ1 GAPDH	N H N N N N N N N N N N N N N N N N N N
	APDH ycerol kinase	GK	Ε
-	ycinamide ribonucleotide (GAR)	GART	E
Go Gu	nsformylase onadotropin releasing hormone receptor ranylyl cyclase	GNRHR	G E
	emoglobin alpha 1	HBA1	T
	emoglobin alpha 2 emoglobin beta	HBA2 HBB	T T
	emoglobin delta	HBD	Ť
	emoglobin gamma A	HBG1	Ť
	emoglobin gamma B	HBG2	Ť
	emoglobin gamma G	HBGG	T
He	paran sulfamidase		Ε
	parin binding epidermal growth factor	HBEGF	G
	parin Cofactor II	HCF2	1
	patic lipase	LIPC	Ε
	xosaminidase A	HEXA,TSD	E
	exosaminidase B	HEXB	E
	opocampal cholinergic neurostimulating pept stamine receptors, H1	ide, HUNP	N
	stamine receptors, H1		N
	stamine receptors, 112		N
	stidase		E
			_

HLA-B associated transcript 1	BAT1	1
HMG-CoA reductase	HMGCR	Ε
Holocarboxylase synthetase	HLCS	Ε
Hypoxia inducible factor 1	HIF1A	Ε
Hypoxia inducible factor 2		Ε
IC7 A and B		1
Inositol monophosphatase	IMPA1	N
Insulin	INS	G
Insulin receptor	INSR	G
Integrin beta 1	ITGB1	G
Integrin beta 2	ITGB2	G
Integrin beta 3	ITGB3	G
Integrin beta 4	ITGB4	G
Integrin beta 5	ITGB5	G
Integrin beta 6	ITGB6	G
Integrin beta 7	ITGB7	G
Integrin, alpha 1	ITGA1	G
Integrin, alpha 2	ITGA2	G
Integrin, alpha 3	ITGA3	G
Integrin, alpha 4	ITGA4	G
Integrin, alpha 5	ITGA5	G
Integrin, alpha 6	ITGA6	G
Integrin, alpha 7	ITGA7	G
Integrin, alpha 8	ITGA8	G
Integrin, alpha 9	ITGA9	Ğ
Integrin, alpha M	ITGAM	Ğ
Integrin, alpha X	ITGAX	G
Interleukin(IL) 1 receptor	IL1R	1
Interleukin(IL) 1, alpha	IL1A	Ī
Interleukin(IL) 1, beta	IL1B	i
Interleukin(IL) 10	IL10	i
Interleukin(IL) 10 receptor	IL10R	i
Interleukin(IL) 11	IL11	i
Interleukin(IL) 11 receptor	IL11R	i
Interleukin(IL) 12	IL12	1
Interleukin(IL) 12 receptor, beta 1	IL12RB1	i
Interleukin(IL) 13	IL13	i
Interleukin(IL) 13 receptor	IL13R	i
Interleukin(IL) 2	IL2	i
Interleukin(IL) 2 receptor, alpha	IL2RA	i
Interleukin(IL) 2 receptor, gamma	IL2RG	i
Interleukin(IL) 3	IL3	i
Interleukin(IL) 3 receptor	IL3R	i
Interleukin(IL) 4	IL4	i
Interleukin(IL) 4 receptor	IL4R	i
Interleukin(IL) 5	IL5	i
Interleukin(IL) 5 receptor	IL5R	i
Interleukin(IL) 6	IL6	i
		•

Interleukin(IL) 6 receptor	IL6R	ľ
Interleukin(IL) 7	IL7	1
Interleukin(IL) 7 receptor	IL7R	I
Interleukin(IL) 8	IL8	1
Interleukin(IL) 8 receptor	IL8R	i
Interleukin(IL) 9	IL9	1
Interleukin(IL) 9 receptor	IL9R	l
Interleukin(IL) receptor antagonist 1	IL1RN, IL1RA	1
IP3 kinase		Ε
Kallikrein 3	KAK3	I
Kininogen, High molecular weight	KNG	1
Kynureninease		E
Laminin 5, alpha 3	LAMA3	G
Laminin 5, beta 3	LAMB3	G
Laminin 5, gamma 2	LAMC2	G
Laminin M	LAMM	G
Laminin receptor 1	LAMR1	G
Latent transforming growth factor-beta binding	LTBP2	G
protein 2		
Leptin	LEP	G
Leptin receptor	LEPR	G
Leukin		l
Leukocyte-specific transcript 1	LST-1	1
Leukotriene A4 hydrolase		l
Leukotriene A4 synthase	LTA4S	E
Leukotriene B4 receptor		1
Leukotriene B4 synthase	LTB4S	E
Leukotriene C4 receptor		1
Leukotriene C4 synthase	LTC4S	E
Leukotriene D4/E4 receptor		1
LIM homeobox protein 1	LHX1	G
LIM-Kinase I (LINK-I)		1
Lipoprotein receptor, Low Density	LDLR	T
Lipoprotein, High Density	HDLDT1	T
Lipoprotein, Intermediate Density		T
Lipoprotein, Low Density 1		T
Lipoprotein, Low Density 2		T
Lipoprotein, Very Low Density	VLDLR	T
Low density lipoprotein receptor-related protein	LRP	Т
precursor		_
Lymphoid enhancer-binding factor	LEF-1	G
MAD (mothers against decapentaplegic,	MADH4	G
Drosophila) homologue 4		-
Mannosidase, alpha B lysosomal	MANB	E
Mannosidase, beta A lysosomal	MANBA	E
Methionine synthase	MTR	E
Mismatch repair gene, PMSL2	PMS2	G
Molybdenum cofactor synthesis 1	MOCS1	Ε

Molybdenum cofactor synthesis 2 Monoamine oxidase A Monoamine oxidase B Muscarinic receptor, M1 Muscarinic receptor, M2 Muscarinic receptor, M3 Muscarinic receptor, M4 Muscarinic receptor, M5 Myelin basic protein N-acetylglucosamine-6-sulfatase N-acetylglucosaminidase, alpha NADPH-dependent cytochrome P450 reductase	MOCS2 MAOA MAOB CHRM1 CHRM2 CHRM3 CHRM4 CHRM5	HHHZZZZZZ 0HHH
NB6 Nerve growth factor Nerve growth factor receptor Neurite inhibitory protein Neuroendocrine convertase 1	NGF NGFR NEC1, PCSK1	I G G N E
Neurofibromin 1	NF1	G
Neurofibromin 2	NF2	G
Neurofilament protein, NF125	NF150	S
Neurofilament protein, NF200	NF200	· S
Neurofilament protein, NF68 Neurokinin A	NF68 NKNA	S
Neurokinin B	NKNB	N N
Neuropeptide Y	NPY	N
Neuropeptide Y receptor Y1	NPY1R	N
Neuropeptide Y receptor Y2	NPY2R	N
Nitric oxide synthase 1, NOS1	NOS1	E
Nitric oxide synthase 2, NOS2	NOS2	Ē
Nitric oxide synthase 3, NOS3	NOS3	E
Notch 3	NOTCH3	G
Nuclear factor I-kappa-B-like gene	IKBL	1
Nucleoside diphosphate kinase-A	NDPKA	E
Oncogene bcl2	55.055	G
Oncogene sis	PDGFB	G
Ornithine delta-aminotransferase	OAT OTO NIME1	E E
Ornithine transcarbamoylase Parkin	OTC, NME1 PARK2	N
Persyn	TAINIZ	S
Phosphoglucose isomerase	GPI	E
Phosphoglycerate kinase 1	PGK1	Ē
Phospholipase A2, group 10	PLA2G10	ī
Phospholipase A2, group 1B	PLA2G1B	•
Phospholipase A2, group 2A	PLA2G2A	I
Phospholipase A2, group 2B	PLA2G2B	I
Phospholipase A2, group 4A	PLA2G4A	ŀ
Phospholipase A2, group 4C	PLA2G4C	1

Phospholipase A2, group 5	PLA2G5	1
Phospholipase A2, group 6	PLA2G6	i
Phospholipase C alpha		i
Phospholipase C beta		i
Phospholipase C delta	PLCD1	i
Phospholipase C epsilon	. 232 /	i
Phospholipase C gamma	PLCG1	1
Plasminogen	PLG	Ė
Plasminogen activator inhibitor 1	PAI1	E
Plasminogen activator inhibitor 2	PAI2	E
Plasminogen activator receptor, Urokinase	UPAR; PLAUR	S
Plasminogen activator, Tissue	PLAT; TPA	E
Plasminogen activator, Urokinase	UPA; PLAU	Ē
Platelet derived growth factor	PDGF	Ğ
Platelet derived growth factor receptor	PDGFR	G
Platelet-activating factor receptor	PAFR	ì
Postsynaptic density-95 protein	PSD95	N
Potassium inwardly-rectifying channel J1	KCNJ1	N
Potassium voltage-gated channel E1	KCNE1	N
Potassium voltage-gated channel Q1	KCNQ1	N
POU domain, class 1, transcription factor 1	POU1F1	G
(Pit1)		Ŭ
Prekallikrein		1
Presenilin 1	PSEN1	Ť
Presenilin 2	PSEN2	Ť
Prion protein	PRNP	N
Procollagen N-protease		E
Proopiomelanocortin	POMC	N
Prostacyclin synthase		Ĭ
Prostaglandin 15-OH dehydrogenase	HGPD; PGDH	i
Prostaglandin D - DP receptor		i
Prostaglandin E1 receptor		1
Prostaglandin E2 receptor		İ
Prostaglandin E3 receptor		i
Prostaglandin F - FP receptor		i
Prostaglandin I2 receptor		Т
Prostaglandin IP receptor		i
Protective protein for beta-galactosidase	PPGB	Ė
Protein C	PROC	1
Protein C inhibitor	PCI	i
Protein kinase C, alpha	PRKCA	
Protein kinase C, gamma	PRKCG	E
Protein kinase G		Ē
Protein phosphatase 1, regulatory (inhibitor)	PPP1R3	E E E
subunit 3		_
Protein S	PROS1	1
Prothrombin precursor	F2	İ
Purine nucleoside phosphorylase	NP	Ė

Pyruvate carboxylase Renin Replication factor C RIGUI S100 calcium-binding protein A1 S100 calcium-binding protein A2 S100 calcium-binding protein A3 S100 calcium-binding protein A4 S100 calcium-binding protein A5 S100 calcium-binding protein A6 S100 calcium-binding protein A7 S100 calcium-binding protein A8 S100 calcium-binding protein A9 S100 calcium-binding protein B S100 calcium-binding protein P	PC REN RFC2 RIGUI S100A1 S100A2 S100A3 S100A4 S100A5 S100A6 S100A7 S100A8 S100A9 S100B S100P	шшш G Z Z Z Z Z Z Z Z Z Z Z
Secretase, alpha	31001	N
Secretase, beta		N
Secretase, gamma		N
Selectin E	SELE	N
Selectin L	SELL	N
Selectin P	SELP	N
Serotonin N-acetyltransferase	SNAT	Ε
Serotonin receptor, 5HT1A	HTR1A	N
Serotonin receptor, 5HT1B	HTR1B	N
Serotonin receptor, 5HT1C	HTR1C	N
Serotonin receptor, 5HT1D	HTR1D	Ν
Serotonin receptor, 5HT1E	HTR1E	Ν
Serotonin receptor, 5HT1F	HTR1F	Ν
Serotonin receptor, 5HT2A	HTR2A	Ν
Serotonin receptor, 5HT2B	HTR2B	Ν
Serotonin receptor, 5HT2C	HTR2C	Ν
Serotonin receptor, 5HT3	HTR3	Ν
Serotonin receptor, 5HT4	HTR4	Ν
Serotonin receptor, 5HT5	HTR5	Ν
Serotonin receptor, 5HT6	HTR6	Ν
Serotonin receptor, 5HT7	HTR7	Ν
Sodium channel, non-voltage gated 1, alpha	SCNN1A	Ν
Sodium channel, non-voltage gated 1, beta	SCNN1B	Ν
Sodium channel, non-voltage gated 1, gamma	SCNN1G	Ν
Sodium channel, voltage-gated, type 1, beta	SCN1B	Ν
polypeptide		
Solute carrier family 1 (glutamate transporter),	SLC1A1	T
member 1		
Solute carrier family 1 (glutamate transporter),	SLC1A2	T
member 2		
Solute carrier family 12, member 1	SLC12A1	T
Solute carrier family 12, member 2	SLC12A2	Τ
Solute carrier family 12. member 3	SLC12A3	Т

Solute carrier family 18, member 3	SLC18A3	Т
Solute carrier family 5 (sodium/glucose	SLC5A1	Т
transporter), member 1		
Solute carrier family 5 (sodium/glucose	SLC5A2	T
transporter), member 2		
Solute carrier family 5 (sodium/glucose	SLC5A5	T
transporter), member 5	0.05.0	
Solute carrier family 5, member 3	SLC5A3	T
Solute carrier family 6 (GAMMA-	SLC6A1	T
AMINOBUTYRIC ACID transporter), member 1	SLOGAS	_
Solute carrier family 6 (neurotransmitter	SLC6A3	T
transporter, dopamine), member 3	SLC6A2	Т
Solute carrier family 6 (neurotransmitter transporter, noradrenaline), member 2	SLCOAZ	ı
Solute carrier family 6 (neurotransmitter	SLC6A4	Т
transporter, serotonin), member 4	G2007 (4	•
Sphingomyelinase	SMPD1	Е
Substance P	S.II. 2 .	N
Succinic semi-aldehyde dehydrogenase	ssadh	
Sulfite oxidase	SUOX	E
Superoxide dismutase 1	SOD1	E
Superoxide dismutase 3	SOD3	Ε
Surfeit 1	SURF1	G
Synaptogyrin		Ν
Synaptophysin	SYP	Ν
Syntaxin 1	STX1	N
Talin	TLN	G
Tau protein	MAPT	S
TEK, tyrosine kinase, endothelial	TEK	E
Telomerase protein component		
Thrombin receptor	F2R	ı
Thrombopoietin	THPO	G
Thromboxane A synthase 1	TBXAS1	1
Topoisomerase I		Ε
Transforming growth factor, beta 2	TGFB2	G
Transforming growth factor, beta receptor 2	TGFBR2	G
Tumour necrosis factor (TNF) receptor	TRAF1	ı
associated factor 1	TD 1 TO	
Tumour necrosis factor (TNF) receptor	TRAF2	ı
associated factor 2	TDAES	
Tumour necrosis factor (TNF) receptor	TRAF3	I
associated factor 3	TDAE4	ì
Tumour necrosis factor (TNF) receptor associated factor 4	TRAF4	ı
	TRAF5	ı
Tumour necrosis factor (TNF) receptor associated factor 5	INALO	1
Tumour necrosis factor (TNF) receptor	TRAF6	ı
associated factor 6		١
associated factor o		

Tumour necrosis factor alpha	TNFA	1
Tumour necrosis factor alpha receptor	TNFAR	[
Tumour necrosis factor beta	TNFB	1
Tumour necrosis factor beta receptor	TNFBR	1
Tumour protein p53	TP53, P53	G
Tumour protein p63	TP63	G
Tyrosine aminotransferase	TAT	Ε
Tyrosine hydroxylase	TH	Ε
Ubiquitin		G
Ubiquitin B	UBB	G
Ubiquitin C	UBC	G
Ubiquitin carboxyl-terminal esterase L1	UCHL1	G
UDP-glucuronosyltransferase 1	ugt1d, UGT1	Ε
UDP-glucuronosyltransferase 2	UGT2	Ε
Uridinediphosphate(UDP)-galactose-4-	GALE	E
epimerase		
Uroporphyrinogen III synthase	UROS	Ε
Vacuolar proton pump, subunit 1	VPP1	Ν
Vacuolar proton pump, subunit 3	VPP3	N
Vasoactive intestinal polypeptide	VIP	N
Vasoactive intestinal polypeptide receptor	VIPR	N
Xanthine dehydrogenase	XDH	E

- 176.A set of probes, said probes being antibodies or antibody fragments which interact with specific expressed proteins encoded by gene sequences of a group of genes, said probes being for detecting relevant variants (mutations and polymorphisms), e.g. nucleotide substitutions (missense, nonsense, splicing and regulatory), small deletions, small insertions. small insertion deletions, gross insertions, gross deletions, duplications, complex rearrangements and repeat variations in a target group of genes; characterised in that said group is a core group of genes consisting of substantially all of the genes defined in claim 175.
- 177.A set according to claim 175 or 176 in which a minority of said probes for listed genes are absent.
- 178.A set according to claim 175 or 176 in which a limited number of additional probes are present together with substantially all of the probes for the listed genes.
- 179.A set according to claim 175 or 176 in which a limited number of probes are replaced by probes for non-listed genes.
- 180.A set of probes for a core group of genes according to any of claims 175 to 179 in which each gene to be probed is substantially similar (greater than 85% homologous) in sequence to the respective member of the core list of genes.
- 181.A set according to any of claims 175 to 180 consisting of probes for members of a sub-group of the core group.

- 182.A set according to any preceding claim in which said probes are in the form of an array and are spatially arranged at known locations on a substrate.
- 183.A set according to any preceding claim wherein said probes are on a substrate which forms part of or consists of one or more chip plate(s), for use in a chip assay for detection of said gene variants.
- 184.A set according to any preceding claim in which said probes are mass. electrostatic or fluorescence tagged probes.
- 185.A set according to claim 182 or 183 in which said substrate is a semiconductor microchip.
- 186.A set according to any preceding claim for use in a biological assay for detection of said gene variants.
- 187. A set according to any preceding claim for use in the measurement of differential gene expression levels.
- 188. A medical device including a set according to any preceding claim for use in an assay for detection of said gene variants.
- 189.A medical device including a set according to any of claims 175 to 187 for use in an array for detection of differential gene expression levels.
- 190. A method for use in assessing the genomic profile of a patient or individual, the method comprising testing for and detecting the presence or absence of DNA or RNA encoding the relevant structural variants (as defined in claim 175) in a target group of genes by hybridising a nucleic acid-containing sample from said patient or individual to a set according to any of claims 175 and 177 to 187 and relating the probe hybridisation pattern to said variations.
- 191. A method for use in assessing the the genomic profile of a patient or individual, the method comprising testing for and detecting the presence or absence of DNA or RNA encoding the relevant structural variants (as defined in claim 176) in a target group of genes by interacting an expressed-protein-containing sample from said patient or individual with a set of probes according to any of claims 176 to 187 and relating the probe interaction pattern to said variations.
- 192. Use of a set or device according to any of claims 175 to 187 for the prognosis and management of patients suffering from or at risk of dementia and/or its associated symptoms.
- 193. Use of a set or device according to any of claims 175 to 187 for predicting likely therapeutic response and adverse events following therapeutic intervention.
- 194. Use of a set or device according to any of claims 175 to 187 for predicting likely therapeutic response and adverse events following the intake of a specific drug.
- 195. Use of a set or device according to any of claims 175 to 187 for predicting likely patterns of symptom clusters (symptom profiles) in disease and the likelihood of subsequent, contingent, disease or symptoms.
- 196. Use of a set or device according to any of claims 175 to 187 for general health screening, occupational health purposes, healthcare planning on a population basis and other healthcare management utilisations.
- 197. Use of a set or device according to any of claims 175 to 187 for the development of new strategies of therapeutic intervention and in clinical trials.
- 198. Use of a set or device according to any of claims 175 to 187 for construction of and generation of algorithms for patient and healthcare management.
- 199. Use of a set or device according to any of claims 175 to 187 for modelling or

- assessing the impact of diseases or healthcare management strategies on individuals, groups, patient cohorts or populations
- 200. Use of a set or device according to any of claims 175 to 187 for modelling, assessing or exploring the theoretical impact of diseases and healthcare management strategies on individuals, groups, patient cohorts or populations.
- 201. Use of a set or device according to any of claims 175 to 187 for predicting optimum configuration/management of thereapeutic intervention.
- 202.A method according to claim 190 or 191 in which the identification of gene variants is indicative of a higher risk of developing dementia and/or its associated symptoms for the patient or individual.
- 203. A method for generating a model to assess whether a patient or individual or population or group is or are likely to develop dementia and/or its associated symptoms, which method comprises:
- obtaining DNA or RNA or protein samples from patients or individuals diagnosed as suffering from dementia and/or its associated symptoms;
- ii) obtaining DNA or RNA or protein samples from a control group of subjects diagnosed as not suffering from the dementia and/or its associated symptoms;
- analysing the samples obtained in i) and ii) to identify the polymorphic variations encoded in the core group of genes as defined in any of claims 175 to 181;
- iv) calculating the frequencies of these alleles in the samples from i) and ii);
- v) comparing the frequencies of these alleles in i) and ii);
- vi) performing a statistical analysis on the results from v) in order to generate a model for assessing the risk of developing dementia and/or its associated symptoms.
- 204. A method for assessing whether a given subject will be at risk of developing dementia and/or its associated symptoms, which comprises comparing said subject's genotype with a model generated by the method of claim 203.
- 205. A method according to any of claims 190, 191, 203 and 204 wherein at least one step is computer-controlled.
- 206. An assay suitable for use in a method according to any of claims 190, 191, 203 and 204; said assay comprising means for determining the presence or absence of relevant polymorphic variants of the core group of genes as defined in any of claims 175 to 181 in a biological sample.
- 207. A formatted assay technique (kit) for use in assessing the risk of a patient or individual developing dementia and/or its associated symptoms; said kit comprising:
 - i) means for testing for the presence or absence or DNA or RNA encoding relevant polymorphic variants of the core group of genes as defined in claim 175 or 177 to 181 in a sample of human DNA;
 - ii) reagents for use in the detection process
 - iii) readout indicating the probability of a patient or individual developing dementia and/or its associated symptoms.
- 208. A formatted assay technique (kit) for use in assessing the risk of a patient or individual developing dementia and/or its associated symptoms; said kit comprising:
 - i) means for testing for the presence or absence of proteins encoded by the core group of genes and/or relevant polymorphic variants of the core

- group of genes as defined in any of claims 176 to 181 in an expressed-protein-containing human sample;
- ii) reagents for use in the detection process
- iii) readout indicating the probability of a patient or individual developing dementia and/or its associated symptoms.
- 209. A set of probes according to claim 175, wherein the probes are selected from the group consisting of oligonucleotides and polynucleotides.
- 210.A set of nucleotide probes for detecting relevant variants (mutations and polymorphisms), e.g. nucleotide substitutions (missense, nonsense, splicing and regulatory), small deletions, small insertions, small insertion deletions, gross insertions, gross deletions, duplications, complex rearrangements and repeat variations in a target group of genes which relate to psychotic disorders and disorders of personality; said probes being complementary to DNA and RNA sequences of said group of genes; characterised in that said group is a core group of genes consisting of substantially all of the following:

KEY TO 'PROTEIN FUNCTION' COLUMN

- E ENZYME
- T TRANSPORT & STORAGE
- S STRUCTURAL
- I IMMUNITY
- N NERVOUS TRANSMISSION
- G GROWTH & DIFFERENTIATION

PSYCHOSES & PERSONALITY GENE LIST	HUGO gene symbol	Protein function
11beta hydroxysteroid dehydrogenase 2	HSD11B2	Ε
5,10-methylenetetrahydrofolate reductase (NADPH)	MTHFR	Ε
Acetylcholine receptor, nicotinic, alpha A1	CHRNA1	N
Acetylcholine receptor, nicotinic, alpha A2	CHRNA2	Ν
Acetylcholine receptor, nicotinic, alpha A3	CHRNA3	N
Acetylcholine receptor, nicotinic, alpha A4	CHRNA4	N ·
Acetylcholine receptor, nicotinic, alpha A5	CHRNA5	N
Acetylcholine receptor, nicotinic, alpha A6	CHRNA6	N
Acetylcholine receptor, nicotinic, alpha A7	CHRNA7	N
Acetylcholine receptor, nicotinic, beta 1	CHRNB1	N
Acetylcholine receptor, nicotinic, beta 2	CHRNB2	N
Acetylcholine receptor, nicotinic, beta 3	CHRNB3	N
Acetylcholine receptor, nicotinic, beta 4	CHRNB4	N
Acetylcholine receptor, nicotinic, epsilon	CHRNE	N
Acetylcholine receptor, nicotinic, gamma	CHRNG	N
Acetylcholinesterase	ACHE	Ε
Adenosine receptor A1	ADORA1	N
Adenosine receptor A2A	ADORA2A	N

Adenosine receptor A2B Adenosine receptor A3 Adenylate cyclase 1 Adenylate cyclase 2 Adenylate cyclase 3 Adenylate cyclase 4 Adenylate cyclase 5 Adenylate cyclase 6 Adenylate cyclase 7 Adenylate cyclase 8 Adenylate cyclase 8 Adenylate cyclase 9 Adenylate cyclase 9 Adenylate cyclase 9 Adenylosuccinate lyase Adrenergic receptor, alpha1 Adrenergic receptor, beta1 Adrenergic receptor, beta2 Adrenergic receptor, beta3 Adrenocorticotrophic hormone (ACTH)	ADORA2B ADORA3 ADCY1 ADCY2 ADCY3 ADCY4 ADCY5 ADCY6 ADCY7 ADCY8 ADCY9 ADCY9 ADSL ADRA1 ADRA2 ADRB1 ADRB2 ADRB3 ACTHR	22222220
receptor Albumin, ALB alpha1-antichymotrypsin alpha-synuclein Amyloid beta A4 precursor protein Amyloid beta A4 precursor-like protein Apolipoprotein A I Apolipoprotein A II Apolipoprotein B Apolipoprotein C1 Apolipoprotein C2 Apolipoprotein C3 Apolipoprotein D Apolipoprotein E Apolipoprotein H Arginosuccinate synthetase Arylsulfatase A Ataxia telangiectasia gene, AT ATP/ADP translocase	ALB AACT SNCA APP APLP APOA1 APOA2 APOB APOC1 APOC2 APOC3 APOD APOE APOH ASS ARSA ATM	T E N N N T T T T T T T E E G E
Atrial natriuretic peptide Atrial natriuretic peptide receptor A Atrial natriuretic peptide receptor B Atrial natriuretic peptide receptor C Bagpipe homeobox, drosophila homolog of, 1 beta-synuclein Brain derived neurotrophic factor Brain derived neurotrophic factor (BDNF)	ANP NPR1 NPR2 NPR3 BAPX1 SNCB BDNF BDNFR	002000200
receptor C1 inhibitor Ca(2+) transporting ATPase, slow twitch	ATP2A2	E T

Calbindin 1	CALB1	G
Calbindin D9K	CALB3	G
Calcineurin A1	CALNA1	I
Calcineurin A2	CALNA2	I
Calcineurin A3	CALNA3	ı
Calcineurin B		l
Calcitonin/Calcitonin gene-related peptide	CALCA	Ν
alpha	0.4.0514.45	
Calcium channel, voltage-dependent, alpha 1F subunit	CACNA1F	Ν
Calcium channel, voltage-dependent, Alpha-	CACNA1B	N
1B (CACNL1A5)	CACIVATE	14
Calcium channel, voltage-dependent, Alpha-	CACNA1C	N
1C		•
Calcium channel, voltage-dependent, Alpha-	CACNA1D	Ν
1D		
Calcium channel, voltage-dependent, Alpha-	CACNA1E	Ν
1E (CACNL1A6)		
Calcium channel, voltage-dependent, Alpha-	CACNA2	Ν
2/delta	CAONEA	
Calcium channel, voltage-dependent, Beta 1	CACNB1	N
Calcium channel, voltage-dependent, Beta 3	CACNB3	N
Calcium channel, voltage-dependent,	CACNG2	Ν
Neuronal, Gamma		
Calcium channel, voltage-dependent, T-type	CALBAA	N
Calmodulin 1	CALM1	G
Calmodulin 2	CALM2	G
Calmodulin 3	CALM3	G
Calmodulin-dependent protein kinase II	CANK2A	G
Calnexin	CARN CARNS	G
Calpain	CAPN, CAPN3	E
Calretinin	CALB2	N
Cannabinoid receptor	CNR1	N
Carbonic anhydrase 3	CA3	E
Carbonic anhydrase 4	CA4	E
Carbonic anhydrase, alpha	CA1	E
Carbonic anhydrase, beta	CA2	E
Cardiac-specific homeobox, CSX	CSX	G
Caspase 1	CASP1	G
Catechol-O-methyltransferase	COMT	E
Ceroid lipofuscinosis neuronal 2	CLN2	N
Ceroid lipofuscinosis neuronal 3	CLN3	N
Ceroid lipofuscinosis neuronal 4	CLN4	N
Ceroid lipofuscinosis neuronal 5	CLN5	N
Ceroid lipofuscinosis neuronal 6	CLN6	N
Chemokine receptor CCR5	CCR5	. 1
Chemokine receptor CXCR4	CXCR4	1
Cholecystokinin	CCK	N

Chalagustakinin B recentor	CCVPD	
Cholecystokinin B receptor	CCKBR	N
Choline acetyltransferase	CHAT	Ε
Chymotrypsinogen		Ε
Ciliary neurotrophic factor (CNTF)	CNTF	G
Ciliary neurotrophic factor (CNTF) receptor	CNTFR	G
Citrate synthase		Ε
Colony-stimulating factor 2	CSF2	G
Colony-stimulating factor 2 alpha receptor	CSF2RA	Ğ
Corticotrophin-releasing hormone	CRH	T
Corticotrophin-releasing hormone receptor	CRHR1	Ť
Cu2+ transporting ATPase beta polypeptide	ATP7B	Ė
Cyclic AMP response element binding protein	CREB	
Cyclic AMP-dependent protein kinase	PKA	G
· · · · · · · · · · · · · · · · · · ·		E
Cyclic nucleotide phosphodiesterase 1B	PDE1B	E
Cyclic nucleotide phosphodiesterase 1B1	PDE1B1	Ε
Cyclic nucleotide phosphodiesterase 2A3	PDE2A3	Ε
Cyclic nucleotide phosphodiesterase 3A	PDE3A	Ε
Cyclic nucleotide phosphodiesterase 3B	PDE3B	E
Cyclic nucleotide phosphodiesterase 4A	PDE4A	Ε
Cyclic nucleotide phosphodiesterase 4C	PDE4C	E
Cyclic nucleotide phosphodiesterase 5A	PDE5A	Ε
Cyclic nucleotide phosphodiesterase 6A	PDE6A	E
Cyclic nucleotide phosphodiesterase 6B	PDE6B	Ε
Cyclic nucleotide phosphodiesterase 7	PDE7	Ε
Cyclic nucleotide phosphodiesterase 8	PDE8	
Cyclic nucleotide phosphodiesterase 9A	PDE9A	Ε
Cyclooxygenase 1	COX1	E
Cyclooxygenase 2	COX2	E
CYP11A1	CYP11A1	E
CYP11B1	CYP11B1	F
CYP11B2	CYP11B2	F
CYP17	CYP17	EE
CYP19	CYP19	E
CYP1A1	CYP1A1	E
CYP1A2	CYP1A2	E
CYP1B1	CYP1B1	E
CYP21	CYP21	E
CYP24	CYP24	E
CYP27	CYP27	E
CYP27B1	PDDR	
CYP2A1	CYP2A1	E
CYP2A13		E
	CYP2A13	E
CYP2A3	CYP2A3	Ε
CYP2A6V2	CYP2A6V2	E
CYP2A7	CYP2A7	E
CYP2B6	CYP2B6	E
CYP2C18	CYP2C18	Ε
CYP2C19	CYP2C19	Ε

CYP2C8	CYP2C8	Ε
CYP2C9	CYP2C9	
CYP2D6	CYP2D6	E
CYP2E1	CYP2E1	E
CYP2F1	CYP2F1	E
CYP2J2		E
	CYP2J2	Ε
CYP3A3	CYP3A3	Ε
CYP3A4	CYP3A4	Ε
CYP3A5	CYP3A5	Ε
CYP3A7	CYP3A7	Ε
CYP4A11	CYP4A11	Ε
CYP4B1	CYP4B1	Ε
CYP4F2	CYP4F2	Ε
CYP4F3	CYP4F3	Ε
CYP51	CYP51	Ε
CYP5A1	CYP5A1	Ε
CYP7A	CYP7A	Ε
CYP8	CYP8	Ε
Cystathionase	CTH	Ε
Cystathione beta synthase	CBS	E
Cytidine deaminase	CDA	E E
Cytidine-5-prime-triphosphate synthetase	CTPS	E
Cytochrome a		Ē
Cytochrome c		Ē
Cytochrome c oxidase, MTCO		Ē
Delta aminolevulinate dehydratase	ALAD	Ē
Delta-7-dehydrocholesterol reductase	DHCR7	E
Dihydrolipoamide succinyltransferase	21.01.	N
Dopamine beta hydroxylase	DBH	E
Dopamine receptors D1	DRD1	N
Dopamine receptors D2	DRD2	N
Dopamine receptors D3	DRD3	N
Dopamine receptors D4	DRD4	N
Dopamine receptors D5	DRD5	
Endothelin 1	EDN1	N
Endothelin 2	EDN1 EDN2	N
Endothelin 3		N
	EDN3	N
Endothelin converting enzyme	ECE1	N
Endothelin receptor type A	EDNRA	N
Endothelin receptor type B	EDNRB	N
Enolase	ENO1	E
Epidermal growth factor	EGF	G
Epidermal growth factor receptor	EGFR	G
Excision repair complementation group 4	ERCC4	Ε
protein		
Fibroblast growth factor	FGF1	G
Fibroblast growth factor receptor 1	FGFR1	G
Fibroblast growth factor receptor 2	FGFR2	G

Fibroblast growth factor receptor 3 Flightless-II, Drosophila homotog of Fragile site, folic acid type, rare, fra(X) A Fragile site, folic acid type, rare, fra(X) E Fragile site, folic acid type, rare, fra(X) F GABA receptor, alpha 1 GABA receptor, alpha 2 GABA receptor, alpha 3 GABA receptor, alpha 4 GABA receptor, alpha 5 GABA receptor, alpha 6 GABA receptor, beta 1 GABA receptor, beta 2 GABA receptor, beta 3 GABA receptor, gamma 1 GABA receptor, gamma 2 GABA receptor, gamma 3 GABA transaminase GDP dissociation inhibitor 1 Geniospasm 1 Glial-cell derived neurotrophic factor (GDNF) receptor	FGFR3 FLII FRAXA FRAXE FRAXF GABRA1 GABRA2 GABRA3 GABRA4 GABRA5 GABRA6 GABRB1 GABRB1 GABRB2 GABRB3 GABRB3 GABRG1 GABRG2 GABRG3 ABAT GDI1 GSM1	GGNNNNNNNNNNNN
Glial-cell derived neurotrophic factor, GDNF Glutamate decarboxylase, GAD Glutamate receptor 1 Glutamate receptor 2 Glutamate receptor 3 Glutamate receptor 4 Glutamate receptor 5 Glutamate receptor 6 Glutamate receptor 7 Glutamate receptor, ionotropic, NMDA 1 Glutamate receptor, ionotropic, NMDA 2A Glutamate receptor, ionotropic, NMDA 2B Glutamate receptor, ionotropic, NMDA 2C Glutamate receptor, ionotropic, NMDA 2C Glutamate receptor, ionotropic, NMDA 2D	GDNF GAD1 GLUR1 GLUR2 GLUR3 GLUR4 GLUR5 GLUR6 GLUR7 NMDAR1 NMDAR2A NMDAR2B NMDAR2C NMDAR2D GCDH GSH GSTZ1 GAPDH	N H Z Z Z Z Z Z Z Z Z Z H H H H
Glycerol kinase Glycinamide ribonucleotide (GAR)	GK GART	E
transformylase Gonadotropin releasing hormone receptor Guanidinoacetate N-methyltransferase Guanine nucleotide-binding protein, alpha activating activity polypeptide, GNAO	GNRHR GAMT GNAO1	G E N

Guanine nucleotide-binding protein, alpha inhibiting activity polypeptide 1, GNAI1	GNAI1	N
Guanine nucleotide-binding protein, alpha inhibiting activity polypeptide 2, GNAI2	GNAI2	N
Guanine nucleotide-binding protein, alpha inhibiting activity polypeptide 3, GNAI3	GNAI3	N
Guanine nucleotide-binding protein, alpha stimulating activity polypeptide, GNAS1	GNAS1	N
Guanine nucleotide-binding protein, alpha stimulating activity polypeptide, GNAS2	GNAS2	N
Guanine nucleotide-binding protein, alpha stimulating activity polypeptide, GNAS3	GNAS3	N
Guanine nucleotide-binding protein, alpha stimulating activity polypeptide, GNAS4	GNAS4	N
Guanine nucleotide-binding protein, alpha transducing activity polypeptide, GNAT1	GNAT1	N
Guanine nucleotide-binding protein, alpha transducing activity polypeptide, GNAT2	GNAT2	N
Guanine nucleotide-binding protein, beta polypeptide 3	GNB3	N
Guanine nucleotide-binding protein, q polypeptide	GNAQ	N
Guanylate cyclase 2D, membrane (retinaspecific)	GUCY2D	E _
Guanylate cyclase activator 1A (retina) Guanylyl cyclase	GUCA1A	. E
Heat shock protein, HSP60 Heat shock protein, HSP70		1
Heat shock protein, HSP90 Heat shock protein, HSPA1 Heat shock protein, HSPA2		1
Heat shock protein, HSPA2 Heparan sulfamidase		E
Hepatic lipase	LIPC	E
Histamine receptors, H1		N
Histamine receptors, H2		N
Histamine receptors, H3		N
HMG-CoA reductase	HMGCR	E
Huntingtin	HD	T
Hypoxanthine-guanine	HPRT	E
phosphoribosyltransferase, HGPRT	HIF1A	_
Hypoxia inducible factor 1 Hypoxia inducible factor 2	nir i A	E E
Inositol monophosphatase	IMPA1	N
Insulin	INS	G
Insulin receptor	INSR	G
Interleukin(IL) 1 receptor	IL1R	ı
Interleukin(IL) 1, alpha	IL1A	i
Interleukin(IL) 1, beta	IL1B	i
	,	•

Interleukin(IL) 10	IL10	1
Interleukin(IL) 10 receptor	IL10R	1
Interleukin(IL) 11	IL11	I
Interleukin(IL) 11 receptor	IL11R	1
Interleukin(IL) 12	IL12	1
Interleukin(IL) 12 receptor, beta 1	IL12RB1	1
Interleukin(IL) 13	IL13	1
Interleukin(IL) 13 receptor	IL13R	i
Interleukin(IL) 2	IL2	1
Interleukin(IL) 2 receptor, alpha	IL2RA	1
Interleukin(IL) 2 receptor, gamma	IL2RG	ı
Interleukin(IL) 3	IL3	l
Interleukin(IL) 3 receptor	IL3R	1
Interleukin(IL) 4	IL4	I
Interleukin(IL) 4 receptor	IL4R	!
Interleukin(IL) 5	IL5	1
Interleukin(IL) 5 receptor	IL5R	1
Interleukin(IL) 6	IL6	- 1
Interleukin(IL) 6 receptor	IL6R	1
Interleukin(IL) 7	IL7	1
Interleukin(IL) 7 receptor	IL7R	1
Interleukin(IL) 8	IL8	1
Interleukin(IL) 8 receptor	IL8R	I
Interleukin(IL) 9	IL9	1
Interleukin(IL) 9 receptor	IL9R	I
Interleukin(IL) receptor antagonist 1	IL1RN, IL1RA	1
IP3 kinase		Ε
Leukin		i
Mismatch repair gene, PMSL2	PMS2	G
Monoamine oxidase A	MAOA	Ε
Monoamine oxidase B	MAOB	E
Muscarinic receptor, M1	CHRM1	Ν
Muscarinic receptor, M2	CHRM2	Ν
Muscarinic receptor, M3	CHRM3	Ν
Muscarinic receptor, M4	CHRM4	Ν
Muscarinic receptor, M5	CHRM5	Ν
Myelin basic protein		S
Myosin, light chain 3	MYL3	S
NADPH-dependent cytochrome P450	POR	E
reductase		
Nerve growth factor	NGF	G
Nerve growth factor receptor	NGFR	G
Neurite inhibitory protein		Ν
Neurofibromin 1	NF1	G
Neurofibromin 2	NF2	G
Neurofilament protein, NF125	NF150	S
Neurofilament protein, NF200	NF200	S
Neurofilament protein, NF68	NF68	S

Neurokinin A	NKNA	N
Neurokinin B	NKNB	N
Neuropeptide Y	NPY	N
Neuropeptide Y receptor Y1	NPY1R	N
Neuropeptide Y receptor Y2	NPY2R	N
Neurotensin	NTS	N
Neurotensin receptor	NTSR1	Ν
Nitric oxide synthase 1, NOS1	NOS1	Ε
Nitric oxide synthase 2, NOS2	NOS2	E
Nitric oxide synthase 3, NOS3	NOS3	Ε
Nucleoside diphosphate kinase-A	NDPKA	E
Oncogene sis	PDGFB	G
Opioid receptor, delta	OPRD1	Ν
Opioid receptor, kappa	OPRK1	Ν
Opioid receptor, mu	OPRM1	Ν
Ornithine delta-aminotransferase	OAT	Ε
Paraoxonase PON1	PON1	Ε
Parkin	PARK2	N
Phospholipase A2, group 10	PLA2G10	ı
Phospholipase A2, group 1B	PLA2G1B	1
Phospholipase A2, group 2A	PLA2G2A	İ
Phospholipase A2, group 2B	PLA2G2B	i
Phospholipase A2, group 4A	PLA2G4A	ì
Phospholipase A2, group 4C	PLA2G4C	i
Phospholipase A2, group 5	PLA2G5	i
Phospholipase A2, group 6	PLA2G6	i
Phospholipase C alpha		i
Phospholipase C beta		i
Phospholipase C delta	PLCD1	i
Phospholipase C epsilon	. 200 .	ì
Phospholipase C gamma	PLCG1	i
Platelet derived growth factor	PDGF	Ġ
Platelet derived growth factor receptor	PDGFR	G
Potassium inwardly-rectifying channel J1	KCNJ1	N
POU domain, class 1, transcription factor 1	POU1F1	G
·	POOTF	G
(Pit1)	PSEN1	Т
Presenilin 1		Ť
Presenilin 2	PSEN2	
Prion protein	PRNP	Й
Proline dehydrogenase	PRODH	E
Proopiomelanocortin	POMC	N
Prosaposin	PSAP	N
Protective protein for beta-galactosidase	PPGB	E
Protein kinase C, alpha	PRKCA	E
Protein kinase C, gamma	PRKCG	E
Protein kinase G	DD01D0	E
Protein phosphatase 1, regulatory (inhibitor)	PPP1R3	Ε
subunit 3		

Proteolipid protein	PLP	N
RIGUI	RIGUI	G
S100 calcium-binding protein A1	S100A1	Ν
S100 calcium-binding protein A2	S100A2	Ν
S100 calcium-binding protein A3	S100A3	Ν
S100 calcium-binding protein A4	S100A4	Ν
S100 calcium-binding protein A5	S100A5	Ν
S100 calcium-binding protein A6	S100A6	Ν
S100 calcium-binding protein A7	S100A7	Ν
S100 calcium-binding protein A8	S100A8	Ν
S100 calcium-binding protein A9	S100A9	Ν
S100 calcium-binding protein B	S100B	Ν
S100 calcium-binding protein P	S100P	Ν
Secretase, alpha		Ν
Secretase, beta		Ν
Secretase, gamma		Ν
Serotonin N-acetyltransferase	SNAT	E
Serotonin receptor, 5HT1A	HTR1A	Ν
Serotonin receptor, 5HT1B	HTR1B	Ν
Serotonin receptor, 5HT1C	HTR1C	Ν
Serotonin receptor, 5HT1D	HTR1D	Ν
Serotonin receptor, 5HT1E	HTR1E	Ν
Serotonin receptor, 5HT1F	HTR1F	Ν
Serotonin receptor, 5HT2A	HTR2A	Ν
Serotonin receptor, 5HT2B	HTR2B	Ν
Serotonin receptor, 5HT2C	HTR2C	Ν
Serotonin receptor, 5HT3	HTR3	Ν
Serotonin receptor, 5HT4	HTR4	N
Serotonin receptor, 5HT5	HTR5	Ν
Serotonin receptor, 5HT6	HTR6	Ν
Serotonin receptor, 5HT7	HTR7	Ν
Sodium channel, non-voltage gated 1, alpha	SCNN1A	Ν
Sodium channel, non-voltage gated 1, beta	SCNN1B	Ν
Sodium channel, non-voltage gated 1, gamma	SCNN1G	Ν
Sodium channel, voltage-gated, type 1, beta	SCN1B	Ν
polypeptide		
Solute carrier family 12, member 1	SLC12A1	T
Solute carrier family 12, member 2	SLC12A2	T
Solute carrier family 12, member 3	SLC12A3	Т
Solute carrier family 4 (anion exchanger),	SLC4A1	T
member 1		_
Solute carrier family 4 (anion exchanger),	SLC4A2	Т
member 2		
Solute carrier family 4 (anion exchanger),	SLC4A3	T
member 3		
Solute carrier family 5 (sodium/glucose	SLC5A1	T
transporter), member 1	~. ~~. ~	
Solute carrier family 5 (sodium/glucose	SLC5A2	T

tennanadar) mambar 2		
transporter), member 2 Solute carrier family 5 (sodium/glucose	SLC5A5	Т
transporter), member 5	SEGGAG	ı
Solute carrier family 5, member 3	SLC5A3	Т
Solute carrier family 5, member 5 Solute carrier family 6 (GAMMA-	SLC6A1	T
AMINOBUTYRIC ACID transporter), member 1	SECONI	i
Solute carrier family 6 (neurotransmitter	SLC6A3	Т
transporter, dopamine), member 3	SECOAS	1
Solute carrier family 6 (neurotransmitter	SLC6A2	Т
transporter, noradrenaline), member 2	SECONZ	1
Solute carrier family 6 (neurotransmitter	SLC6A4	Т
transporter, serotonin), member 4	SEG0/14	•
Superoxide dismutase 1	SOD1	Ε
Superoxide dismutase 3	SOD3	E
Synapsin 1a & 1b	SYN1	N
Synapsin 2a & 2b	SYN2	N
Synaptic vesicle amine transporter	SVAT	N
Synaptogyrin		N
Synaptophysin	SYP	N
Synaptosomal-associated protein, 25KD	SNAP25	N
Syntaxin 1	STX1	N
Tachykinin receptor, NK1R	TACR1	N
Tachykinin receptor, NK2R	TACR2	Ν
Tachykinin receptor, NK3R	TACR3	Ν
Talin	TLN	G
TEK, tyrosine kinase, endothelial	TEK	Ε
Telomerase protein component		Ε
Transcobalamin 1, TCN1		T
Transcobalamin 2, TCN2	TCN2	T
Transcription factor, TUPLE1	TUPLE1	Ν
Transforming growth factor, beta 2	TGFB2	G
Transforming growth factor, beta induced	TGFBI	G
Transforming growth factor, beta receptor 2	TGFBR2	G
Transthyretin	TTR	T
Trypsin inhibitor		Ε
Tryptophan 2,3-dioxygenase	TDO2	Ν
Tryptophan hydroxylase	TPH	Ε
Tumour necrosis factor (TNF) receptor	TRAF1	I
associated factor 1		
Tumour necrosis factor (TNF) receptor	TRAF2	l
associated factor 2		
Tumour necrosis factor (TNF) receptor	TRAF3	1
associated factor 3		
Tumour necrosis factor (TNF) receptor	TRAF4	l
associated factor 4		
Tumour necrosis factor (TNF) receptor	TRAF5	1
associated factor 5	TD 4 50	
Tumour necrosis factor (TNF) receptor	TRAF6	i

associated factor 6		
Tumour necrosis factor alpha	TNFA	1
Tumour necrosis factor alpha receptor	TNFAR	i
Tumour necrosis factor beta	TNFB	1
Tumour necrosis factor beta receptor	TNFBR	1
Tyrosinase	TYR	E
Tyrosine hydroxylase	TH	E
Ubiquitin		G
Ubiquitin activating enzyme, E1		Ε
Ubiquitin B	UBB	G
Ubiquitin C	UBC	G
Ubiquitin protein ligase E3A	UBE3A	E
UDP-glucuronosyltransferase 1	ugt1d, UGT1	E
UDP-glucuronosyltransferase 2	UGT2	E
Uridinediphosphate(UDP)-galactose-4-	GALE	E
epimerase		
Vacuolar proton pump, subunit 1	VPP1	N
Vacuolar proton pump, subunit 3	VPP3	N
Vesicular monoamine transporter 1	VMAT1	Ν
Vesicular monoamine transporter 2	VMAT2	N

- 211.A set of probes, said probes being antibodies or antibody fragments which interact with specific expressed proteins encoded by gene sequences of a group of genes, said probes being for detecting relevant variants (mutations and polymorphisms), e.g. nucleotide substitutions (missense, nonsense, splicing and regulatory), small deletions, small insertions, small insertion deletions, gross insertions, gross deletions, duplications, complex rearrangements and repeat variations in a target group of genes; characterised in that said group is a core group of genes consisting of substantially all of the genes defined in claim 210.
- 212.A set according to claim 210 or 211 in which a minority of said probes for listed genes are absent.
- 213.A set according to claim 210 or 211 in which a limited number of additional probes are present together with substantially all of the probes for the listed genes.
- 214.A set according to claim 210 or 211 in which a limited number of probes are replaced by probes for non-listed genes.
- 215.A set of probes for a core group of genes according to any of claims 210 to 214 in which each gene to be probed is substantially similar (greater than 85% homologous) in sequence to the respective member of the core list of genes.
- 216.A set according to any of claims 210 to 215 consisting of probes for members of a sub-group of the core group.
- 217.A set according to any preceding claim in which said probes are in the form of an array and are spatially arranged at known locations on a substrate.

- 218.A set according to any preceding claim wherein said probes are on a substrate which forms part of or consists of one or more chip plate(s), for use in a chip assay for detection of said gene variants.
- 219.A set according to any preceding claim in which said probes are mass, electrostatic or fluorescence tagged probes.
- 220.A set according to claim 217 or 218 in which said substrate is a semiconductor microchip.
- 221.A set according to any preceding claim for use in a biological assay for detection of said gene variants.
- 222. A set according to any preceding claim for use in the measurement of differential gene expression levels.
- 223. A medical device including a set according to any preceding claim for use in an assay for detection of said gene variants.
- 224. A medical device including a set according to any of claims 210 to 222 for use in an array for detection of differential gene expression levels.
- 225. A method for use in assessing the genomic profile of a patient or individual, the method comprising testing for and detecting the presence or absence of DNA or RNA encoding the relevant structural variants (as defined in claim 210) in a target group of genes by hybridising a nucleic acid-containing sample from said patient or individual to a set according to any of claims 210 and 212 to 222 and relating the probe hybridisation pattern to said variations.
- 226. A method for use in assessing the the genomic profile of a patient or individual, the method comprising testing for and detecting the presence or absence of DNA or RNA encoding the relevant structural variants (as defined in claim 211) in a target group of genes by interacting an expressed-protein-containing sample from said patient or individual with a set of probes according to any of claims 211 to 222 and relating the probe interaction pattern to said variations.
- 227. Use of a set or device according to any of claims 210 to 222 for the prognosis and management of patients suffering from or at risk of experiencing the symptoms and consequences of psychotic disorders and disorders of personality.
- 228. Use of a set or device according to any of claims 210 to 222 for predicting likely therapeutic response and adverse events following therapeutic intervention.
- 229. Use of a set or device according to any of claims 210 to 222 for predicting likely therapeutic response and adverse events following the intake of a specific drug.
- 230. Use of a set or device according to any of claims 210 to 222 for predicting likely patterns of symptom clusters (symptom profiles) in disease and the likelihood of subsequent, contingent, disease or symptoms.
- 231. Use of a set or device according to any of claims 210 to 222 for general health screening, occupational health purposes, healthcare planning on a population basis and other healthcare management utilisations.
- 232. Use of a set or device according to any of claims 210 to 222 for the development of new strategies of therapeutic intervention and in clinical trials.
- 233. Use of a set or device according to any of claims 210 to 222 for construction of and generation of algorithms for patient and healthcare management.
- 234. Use of a set or device according to any of claims 210 to 222 for modelling or assessing the impact of diseases or healthcare management strategies on

- individuals, groups, patient cohorts or populations
- 235. Use of a set or device according to any of claims 210 to 222 for modelling, assessing or exploring the theoretical impact of diseases and healthcare management strategies on individuals, groups, patient cohorts or populations.
- 236.Use of a set or device according to any of claims 210 to 222 for predicting optimum configuration/management of thereapeutic intervention.
- 237.A method according to claim 225 or 226 in which the identification of gene variants is indicative of a higher risk of developing the symptoms and consequences of psychotic disorders and disorders of personality for the patient or individual.
- 238. A method for generating a model to assess whether a patient or individual or population or group is or are likely to develop the symptoms and consequences of psychotic disorders and disorders of personality, which method comprises:
- obtaining DNA or RNA or protein samples from patients or individuals diagnosed as suffering from the symptoms and consequences of psychotic disorders and disorders of personality;
- obtaining DNA or RNA or protein samples from a control group of subjects diagnosed as not suffering from the symptoms and consequences of psychotic disorders and disorders of personality;
- iii) analysing the samples obtained in i) and ii) to identify the polymorphic variations encoded in the core group of genes as defined in any of claims 210 to 216:
- iv) calculating the frequencies of these alleles in the samples from i) and ii);
- v) comparing the frequencies of these alleles in i) and ii);
- vi) performing a statistical analysis on the results from v) in order to generate a model for assessing the risk of developing the symptoms and consequences of psychotic disorders and disorders of personality.
- 239. A method for assessing whether a given subject will be at risk of developing the symptoms and consequences of psychotic disorders and disorders of personality, which comprises comparing said subject's genotype with a model generated by the method of claim 238.
- 240. A method according to any of claims 225, 226, 238 and 239 wherein at least one step is computer-controlled.
- 241. An assay suitable for use in a method according to any of claims 225, 226, 238 and 239; said assay comprising means for determining the presence or absence of relevant polymorphic variants of the core group of genes as defined in any of claims 210 to 216 in a biological sample.
- 242. A formatted assay technique (kit) for use in assessing the risk of a patient or individual developing the symptoms and consequences of psychotic disorders and disorders of personality; said kit comprising:
 - i) means for testing for the presence or absence or DNA or RNA encoding relevant polymorphic variants of the core group of genes as defined in claim 210 or 210 to 216 in a sample of human DNA;
 - ii) reagents for use in the detection process
 - iii) readout indicating the probability of a patient or individual developing the symptoms and consequences of psychotic disorders and disorders of personality.

- 243. A formatted assay technique (kit) for use in assessing the risk of a patient or individual developing the symptoms and consequences of psychotic disorders and disorders of personality; said kit comprising:
 - i) means for testing for the presence or absence of proteins encoded by the core group of genes and/or relevant polymorphic variants of the core group of genes as defined in any of claims 211 to 216 in an expressed-protein-containing human sample;
 - ii) reagents for use in the detection process
 - iii) readout indicating the probability of a patient or individual developing the symptoms and consequences of psychotic disorders and disorders of personality.
- A set of probes according to claim 210, wherein the probes are selected from the group consisting of oligonucleotides and polynucleotides.
- 245. A set of nucleotide probes for detecting relevant variants (mutations and polymorphisms), e.g. nucleotide substitutions (missense, nonsense, splicing and regulatory), small deletions, small insertions, small insertion deletions, gross insertions, gross deletions, duplications, complex rearrangements and repeat variations in a target group of genes which relate to cardiovascular disease, dysfunction and/or damage; said probes being complementary to DNA and RNA sequences of said group of genes; characterised in that said group is a core group of genes consisting of substantially all of the following:

KEY TO 'PROTEIN FUNCTION' COLUMN

- E ENZYME
- T TRANSPORT & STORAGE
- S STRUCTURAL
- I IMMUNITY
- N NERVOUS TRANSMISSION
- G GROWTH & DIFFERENTIATION

CARDIOVASCULAR GENE LIST	HUGO gene symbol	Protein function
17beta hydroxysteroid oxidoreductase		E
2,3-bisphosphoglycerate mutase	BPGM	Ε
3 beta hydroxysteroid dehydrogenase 2	HSD3B2	Ε
3-oxoacid CoA transferase	OXCT	Ε
5,10-methylenetetrahydrofolate reductase	MTHFR	E
(NADPH)		
Acetoacetyl 1-CoA-thiolase	ACAT1	E
Acetoacetyl 2-CoA-thiolase	ACAT2	E
Acetyl CoA acyltransferase	ACAA	E
Acetylcholinesterase	ACHE	E
Acid phosphatase 2, lysosomal	ACP2	E
Acidic amino acid transporter		T
Actin, alpha, cardiac	ACTC	S
Actin, alpha, skeletal	ACTA1	S

Activin A receptor, type 2B Acyl CoA dehydrogenase, long chain Acyl CoA dehydrogenase, very long chain Adaptin, beta 3A Adducin, alpha Adducin, beta Adenosine deaminase Adenosine receptor A1 Adenosine receptor A2B Adenosine receptor A3 Adenylate cyclase 1 Adenylate cyclase 2 Adenylate cyclase 3 Adenylate cyclase 5 Adenylate cyclase 6 Adenylate cyclase 6 Adenylate cyclase 8 Adenylate cyclase 8 Adenylate cyclase 9 Adenylate cyclase 8 Adenylate cyclase 8 Adenylate cyclase 8 Adenylate cyclase 8 Adenylate cyclase 8 Adenylate cyclase 1	ACTA2 ACVR2B ACADL ACADVL ADTB3A ADD1 ADD2 ADA ADORA2A ADORA2B ADORA2B ADORA3 ADCY1 ADCY2 ADCY3 ADCY4 ADCY5 ADCY6 ADCY7 ADCY8 ADCY7 ADCY8 ADCY9 AK1 ADRA1 ADRA1 ADRA2 ADRB1 ADRB2 ADRB3 ACTHR	のの単単下のの単ZZZZⅢⅢⅢⅢⅢⅢⅢⅡZZZZZG
receptor Alanine aminotransferase Alanine-glyoxylate aminotransferase Albumin, ALB Alcohol dehydrogenase 1 Alcohol dehydrogenase 2 Alcohol dehydrogenase 3 Alcohol dehydrogenase 5 Alcohol dehydrogenase 6 Alcohol dehydrogenase 7 Aldehyde dehydrogenase 1 Aldehyde dehydrogenase 10 Aldehyde dehydrogenase 2 Aldehyde dehydrogenase 5 Aldehyde dehydrogenase 5 Aldehyde dehydrogenase 6 Aldehyde dehydrogenase 6 Aldehyde dehydrogenase 7 Aldolase A Aldolase B Aldolase C Aldosterone receptor	AGXT ALB ADH1 ADH2 ADH3 ADH5 ADH6 ADH7 ALDH1 ALDH10 ALDH2 ALDH5 ALDH5 ALDH6 ALDH7 ALDH6 ALDH7 ALDOA ALDOB ALDOC MLR	TETEEEEEEEEEEEG

Alpha 1 acid glycoprotein	AAG; AGP	т
•	A2M	T
Alpha 2 macroglobulin	PI	
alpha1-antitrypsin	PLI	E
alpha2-antiplasmin		E
alpha-actinin 2	ACTN2	G
alpha-actinin 3	ACTN3	G
alpha-Galactosidase A	GLA	E
alpha-L-Iduronidase	IDUA	Е
Aminopeptidase P	XPNPEP2	Е
Amphiregulin	AREG	G
Amylo-1,6-glucosidase	AGL	Е
Angiopoietin 1	ANGPT1	G
Angiopoietin 2	ANGPT2	G
Angiotensin converting enzyme	ACE, DCP1	Ε
Angiotensin receptor 1	AGTR1	T
Angiotensin receptor 2	AGTR2	T
Angiotensinogen	AGT	Ε
Ankyrin 1	ANK1	S
Ankyrin 2	ANK2	S S
Ankyrin 3	ANK3	S
Annexin 1	ANX 1	1
Antidiuretic hormone receptor	ADHR	T
Antithrombin III	AT3	E
Apolipoprotein (a)	LPA	T
Apolipoprotein A 4	APOA4	Т
Apolipoprotein A I	APOA1	Т
Apolipoprotein A II	APOA2	Т
Apolipoprotein B	APOB	Т
Apolipoprotein C1	APOC1	Т
Apolipoprotein C2	APOC2	Т
Apolipoprotein C3	APOC3	T
Apolipoprotein D	APOD	Т
Apolipoprotein E	APOE	Т
Apolipoprotein H	APOH	Т
Aquaporin 1	AQP1	Т
Aquaporin 2	AQP2	Т
Arginine vasopressin	AVP	N
Arginine vasopressin receptor 1A	AVPR1A	N
Arginine vasopressin receptor 1B	AVPR1B	N
Arginine vasopressin receptor 2	AVPR2	N
Arginosuccinate lyase	ASL	E
Arylsulfatase B	ARSB	E
Aspartylglucosaminidase	AGA	Ē
Ataxia telangiectasia gene, AT	ATM	Ğ
ATP/ADP translocase		Ē
ATP-binding cassette transporter 7	ABC7	ī
Atrial natriuretic peptide	ANP	Ġ
Atrial natriuretic peptide receptor A	NPR1	G
ar manaratio popular receptor /1	,	9

Atrial natriuretic peptide receptor B Atrial natriuretic peptide receptor C Autoimmune regulator, AIRE BCL2-related protein A1	NPR2 NPR3 AIRE BCL2A1	G G - G
beta 2 microglobulin beta-endorphin receptor Bile acid coenzyme A: amino acid N-	B2M BAAT	I N E
acyltransferase Bile salt export pump Bile salt-stimulated lipase Bilirubin UDP-glucuronosyltransferase	BSEP, PFIC2 CEL	T E E
Bloom syndrome protein Bradykinin receptor B1 Bradykinin receptor B2	BLM	G I
Bradykinin receptor B2 Butyrylcholinesterase Ca(2+) transporting ATPase, fast twitch Ca(2+) transporting ATPase, slow twitch Cadherin E Cadherin EP	BCHE ATP2A1 ATP2A2 CDH1	- ETTGG
Cadherin N Cadherin P Calbindin 1 Calbindin D9K	CDH2 CDH3 CALB1 CALB3	G G G
Calcineurin A1 Calcineurin A2 Calcineurin A3 Calcineurin B	CALNA1 CALNA2 CALNA3	1
Calcium channel, voltage-dependent, alpha 1F subunit	CACNA1F	Ň
Calcium channel, voltage-dependent, Alpha- 1B (CACNL1A5)		N
Calcium channel, voltage-dependent, Alpha- 1C		N
Calcium channel, voltage-dependent, Alpha- 1D Calcium channel, voltage-dependent, Alpha-		N
1E (CACNL1A6) Calcium channel, voltage-dependent, Alpha-		N
2/delta Calcium channel, voltage-dependent, Beta 1		N
Calcium channel, voltage-dependent, Beta 3		N
Calcium channel, voltage-dependent, L type, alpha 1S subunit		Ν
Calcium channel, voltage-dependent, Neuronal, Gamma	CACNG2	N
Calcium channel, voltage-dependent, P/Q type, alpha 1A subunit	CACNA1A	Ν
Calcium channel, voltage-dependent, T-type		Ν

Hepatic lipase	LIPC	Е
Hermansky-pudlak syndrome gene	HPS	T
Hexokinase 1	HK1	E
Hexosaminidase A	HEXA,TSD	Ε
Hexosaminidase B	HEXB	Ε
Histidine-rich glycoprotein	HRG	Т
HLA-B associated transcript 1	BAT1	i
HLH transcription factor HAND1	HAND1	G
HLH transcription factor HAND2	HAND2	G
HMG-CoA iyase	HMGCL	E
HMG-CoA reductase	HMGCR	Ε
HMG-CoA synthase	HMGCS2	Ε
Homeobox (HOX) gene A13	HOXA13	G
Homeobox HB24	HLX1	G
Hormone-sensitive lipase	HSL	Ε
Human chorionic gonadtrophin, hCG	CG	G
Human placental lactogen	CSH1	. G
Hypoxanthine-guanine	HPRT	Ε
phosphoribosyltransferase, HGPRT		
Hypoxia inducible factor 1	HIF1A	Ε
Hypoxia inducible factor 2		Ε
IC7 A and B		1
Iduronate 2 sulphatase	IDS	Ε
Indian hedgehog, ihh	IHH	G
Inosine triphosphatase	ITPA	Ε
Inositol 1,4,5-triphosphate receptor 1	ITPR1	G
Inositol 1,4,5-triphosphate receptor 3	ITPR3	G
Inositol monophosphatase	IMPA1	Ν
Inositol polyphosphate 1-phosphatase	INPP1	N
Insulin	INS	G
Insulin receptor	INSR	G
Insulin receptor substrate-1	IRS1	G
Insulin-like growth factor 1	IGF1	G
Insulin-like growth factor 1 receptor	IGF1R	G
Insulin-like growth factor 2	IGF2	G
Insulin-like growth factor 2 receptor	IGF2R	G
Integrin beta 1	ITGB1	G
Integrin beta 2	ITGB2	G
Integrin beta 3	ITGB3	G
Integrin beta 4	ITGB4	G
Integrin beta 5	ITGB5	G
Integrin beta 6	ITGB6	G
Integrin beta 7	ITGB7	G
Integrin, alpha 1	ITGA1	G
Integrin, alpha 2	ITGA2	G
Integrin, alpha 3	ITGA3	G
Integrin, alpha 4	ITGA4	G
Integrin, alpha 5	ITGA5	G

Internity olaha 6	ITCAG	_
Integrin, alpha 6	ITGA6	G
Integrin, alpha 7	ITGA7	G
Integrin, alpha 8	ITGA8	G
Integrin, alpha 9	ITGA9	G
Integrin, alpha M	ITGAM	G
Integrin, alpha X	ITGAX	G
Inter-alpha-trypsin inhibitor, IATI		Ę
Intercellular adhesion molecule 1	ICAM1	1
Intercellular adhesion molecule 2	ICAM2	1
Intercellular adhesion molecule 3	ICAM3	1
Interferon alpha	IFNA1	1
Interferon beta	IFNB	Ī
Interferon gamma	IFNG	i
Interferon gamma receptor 1	IFNGR1	i
Interferon gamma receptor 2	IFNGR2	i
Interleukin(IL) 1 receptor	IL1R	
Interleukin(IL) 1, alpha	IL1A	1
Interleukin(IL) 1, beta	IL1B	1
Interleukin(IL) 10	IL10	1
Interleukin(IL) 10 receptor	IL10R	
Interleukin(IL) 11	IL11	a Î
Interleukin(IL) 11 receptor	IL11R	1
• • • • • • • • • • • • • • • • • • • •	IL12	l I
Interleukin(IL) 12	IL12RB1	1
Interleukin(IL) 12 receptor, beta 1	IL13	j I
Interleukin(IL) 13		i 1
Interleukin(IL) 13 receptor	IL13R	i
Interleukin(IL) 2	IL2	1
Interleukin(IL) 2 receptor, alpha	IL2RA	!
Interleukin(IL) 2 receptor, gamma	IL2RG	i
Interleukin(IL) 3	IL3	!
Interleukin(IL) 3 receptor	IL3R	
Interleukin(IL) 4	IL4	!
Interleukin(IL) 4 receptor	IL4R	1
Interleukin(IL) 5	IL5	1
Interleukin(IL) 5 receptor	IL5R	l .
Interleukin(IL) 6	IL6	l l
Interleukin(IL) 6 receptor	IL6R	ı
Interleukin(IL) 7	IL7	1
Interleukin(IL) 7 receptor	IL7R	Į.
Interleukin(IL) 8	IL8	ı
Interleukin(IL) 8 receptor	IL8R	I
Interleukin(IL) 9	IL9	1
Interleukin(IL) 9 receptor	IL9R	1
Interleukin(IL) receptor antagonist 1	IL1RN, IL1RA	Ĭ
IP3 kinase		E
Isovaleric acid CoA dehydrogenase	IVD	Ε
Kallikrein 3	KAK3	1
Kell blood group precursor	XK, KEL	Т

Ketohexokinase KHK Kininogen, High molecular weight KNG	E
Kynureninease	E
Lactate dehydrogenase, A LDHA	E
Lactate dehydrogenase, B LDHB	Ε
Lamin A/C LMNA	G
Laminin 5, alpha 3 LAMA3	G
Laminin 5, beta 3 LAMB3	G
Laminin 5, gamma 2 LAMC2	G
Laminin M LAMM	G
Laminin receptor 1 LAMR1	G
Latent transforming growth factor-beta LTBP2	G
binding protein 2	
Lecithin-cholesterol acyltransferase LCAT	Ε
Lectin, mannose-binding 1 LMAN1	I
Lectin, mannose-binding 2 MBL2	1
Leptin	G
Leptin receptor LEPR	G
Leukocyte-specific transcript 1 LST-1	i
Leukotriene A4 synthase LTA4S	Ε
Leukotriene B4 receptor	l
Leukotriene B4 synthase LTB4S	Ε
Leukotriene C4 synthase LTC4S	Ε
LIM homeobox protein 1 LHX1	G
Lipocortin 1 ANX4	I
Lipoprotein lipase LPL	1
Lipoprotein receptor, Low Density LDLR	T
Lipoprotein, High Density HDLDT1	Т
Lipoprotein, Very Low Density VLDLR	Τ
Lipoprotein-associated coagulation factor LACI	1
Lipoxygenase	Ε
Lipoxygenase 12 (platelets) LOG12	- 1
Long QT-type 2 potassium channels LQT2, KCNH2	T
Low density lipoprotein receptor-related LRP	T
protein precursor	
Lymphoid enhancer-binding factor LEF-1	G
Lysosomal acid lipase LIPA	Ε
Macrophage inflammatory protein-2 MIP2	- 1
MAD (mothers against decapentaplegic, MADH4	G
Drosophila) homologue 4	
MADS box transcription-enhancer factor 2A MEF2A	G
MADS box transcription-enhancer factor 2B MEF2B	G
Mannosidase, alpha B lysosomal MANB	Ε
Matrix Gla protein MGP	G
Matrix metalloproteinase 1 MMP1	Ε
Matrix metalloproteinase 10 MMP10	
	E E

Matrix metalloproteinase 13	MMP13	Ε
Matrix metalloproteinase 14	MMP14	E
Matrix metalloproteinase 15	MMP15	E
Matrix metalloproteinase 16	MMP16	E
Matrix metalloproteinase 17	MMP17	Ē
Matrix metalloproteinase 18	MMP18	E
Matrix metalloproteinase 19	MMP19	E
Matrix metalloproteinase 2	MMP2	
Matrix metalloproteinase 3	MMP3, STMY1	E
Matrix metalloproteinase 4	MMP4	
Matrix metalloproteinase 5	MMP5	E
•		
Matrix metalloproteinase 6	MMP6	E
Matrix metalloproteinase 7	MMP7	E
Matrix metalloproteinase 8	MMP8	E
Matrix metalloproteinase 9	MMP9	E
Melanocortin 2 receptor	MC2R	T
Melanocortin 4 receptor	MC4R	Т
Methionine synthase	MTR	E
Methionine synthase reductase	MTRR	Ε
Methylmalonyl-CoA mutase	MUT	Ε
Mevalonate kinase	MVK	Ε
MHC Class I: A		1
MHC Class I: B		
MHC Class I: C	·	-1
MHC Class I: LMP-2, LMP-7		-1
MHC Class I: Tap1	ABCR, TAP1	1
MHC Class II: DP	HLA-DPB1	-1
MHC Class II: DQ		- 1
MHC Class II: DR	•	-1
MHC Class II: Tap2	TAP2, PSF2	1
MHC Class II:Complementation group A	MHC2TA	1
MHC Class II:Complementation group B	rfxank	i
MHC Class II:Complementation group C	RFX5	1
MHC Class II:Complementation group D	RFXAP	-
Microsomal triglyceride transfer protein	MTP	Т
Mismatch repair gene, PMSL2	PMS2	G
Mitochondrial trifunctional protein, alpha	HADHA	E
subunit		
Mitochondrial trifunctional protein, beta	HADHB	Ε
subunit		_
Molybdenum cofactor synthesis 1	MOCS1	Ε
Molybdenum cofactor synthesis 2	MOCS2	E
Monoamine oxidase A	MAOA	E
Monoamine oxidase B	MAOB	E
Monocyte chemoattractant protein 1	MCP1	
Mucolipidoses	GNPTA	Ė
Mulibrey nanism	MUL	T
Muscarinic receptor, M1	CHRM1	
Muscarinic receptor, MT	CULIMI	Ν

Muscarinic receptor, M2 Muscarinic receptor, M3 Muscarinic receptor, M4 Muscarinic receptor, M5 MutS homolog 3	CHRM2 CHRM3 CHRM4 CHRM5 MSH3	Z Z Z Z G F
Myoglobin Myosin, cardiac Myosin, light chain 2 Myosin, light chain 3 Myosin-binding protein C, cardiac Myotubularin Na+, K+ ATPase, alpha Na+, K+ ATPase, beta 1 Na+, K+ ATPase, beta 2 Na+, K+ ATPase, beta 3 Na+/H+ exchanger 1 Na+/H+ exchanger 2 Na+/H+ exchanger 3 Na+/H+ exchanger 4 Na+/H+ exchanger 5 N-acetylglucosamine-6-sulfatase	MYH7 MYL2 MYL3 MYBPC3 MTM1 ATP1A1 ATP1B1 ATP1B2 ATP1B3 NHE1 NHE2 NHE3 NHE4 NHE5 GNS	TSSSSGGGGTTTTTE
NADPH oxidase NADPH-dependent cytochrome P450	POR	I E
reductase NB6 Nebulin Nephronophthisis 1 Neuraminidase sialidase	NEB NPHP1 NEU	I S T T
Neuregulin Neurite inhibitory protein Neuroendocrine convertase 1 Neurokinin A	HGL NEC1, PCSK1 NKNA	G N E N
Neurokinin A Neuropeptide Y Neuropeptide Y receptor Y1	NKNB NPY NPY1R	N N N
Neuropeptide Y receptor Y2 Neutrophil cystolic factor 1 Neutrophil cystolic factor 2 Niemann-Pick disease protein	NPY2R NCF1 NCF2 NPC1	N
Nitric oxide synthase 1, NOS1 Nitric oxide synthase 2, NOS2 Nitric oxide synthase 3, NOS3	NOS1 NOS2 NOS3	E E E
Notch ligand - jagged 1 Nuclear factor I-kappa-B-like gene Oncogene sis Oncostatin M	JAG1, AGS IKBL PDGFB OSM	G I G G
Oncostatin M receptor Osteonectin	OSMR ON	G G

Osteopontin	OPN	G
Osteoprotegerin	OPG	G
Pancreatic lipase	PNLIP	Ε
Pancreatic lipase related protein 1	PLRP1	Ε
Pancreatic lipase related protein 2	PLRP2	Ε
Paraoxonase PON1	PON1	E
Paraoxonase PON2	PON2	E
Paraoxonase PON3		Ε
Parvalbumin	PVALB	G
Patched (Drosophila) homolog, PTCH	PTCH	G
PCNA (proliferating cell nuclear antigen)		Ε
Pepsinogen		E
Peroxidase, salivary	SAPX	E
Peroxisomal membrane protein 1	PXMP1	s
Peroxisomal membrane protein 3	PXMP3	Ť
Peroxisome biogenesis factor 1	PEX1	Ť
Peroxisome biogenesis factor 19	PEX19	Ť
Peroxisome biogenesis factor 6	PEX6	Ť
Peroxisome biogenesis factor 7	PEX7	Ť
Peroxisome proliferative activated receptor,	PPARA	Ť
alpha		٠
Peroxisome proliferative activated receptor,	PPARG	Т
gamma	117110	,
Peroxisome receptor 1	PXR1	Т
P-glycoprotein 3	PGY3	Ť
Phosphatidylinositol glycan, class A	PIGA	Ġ
(paroxysmal nocturnal hemoglobinuria)		G
Phosphatidylinositol transfer protein	PITPN	G
Phosphofructokinase, muscle	PFKM	E
Phosphoglucose isomerase	GPI	E
Phospholipase A2, group 10	PLA2G10	
Phospholipase A2, group 1B	PLA2G1B	
	PLA2G2A	1
Phospholipase A2, group 2A		1
Phospholipase A2, group 2B	PLA2G2B	!
Phospholipase A2, group 4A	PLA2G4A	!
Phospholipase A2, group 4C	PLA2G4C	l ,
Phospholipase A2, group 5	PLA2G5	!
Phospholipase A2, group 6	PLA2G6	i
Phospholipase C alpha		!
Phospholipase C beta	5. 65.	1
Phospholipase C delta	PLCD1	1
Phospholipase C epsilon		1
Phospholipase C gamma	PLCG1	1
Phosphomannomutase-2	PMM2	T
Phosphoribosyl pyrophosphate synthetase	PRPS1	E
Phosphorylase kinase, alpha 2	PHKA2	E
Phytanoyl-CoA hydroxylase	PHYH	G
Plasminogen	PLG	Ε

Plasminogen activator inhibitor 1 Plasminogen activator inhibitor 2 Plasminogen activator receptor, Urokinase Plasminogen activator, Tissue Plasminogen activator, Urokinase Platelet derived growth factor Platelet derived growth factor receptor Platelet glutaminase Platelet glycoprotein 1b, alpha Platelet glycoprotein 1b, beta Platelet glycoprotein 1b, gamma Platelet glycoprotein IX Platelet glycoprotein V Platelet monamine oxidase	PAI1 PAI2 UPAR; PLAUR PLAT; TPA UPA; PLAU PDGF PDGFR GLS GP1BA GP1BB GP1BG GP9 GP5	HESHEGGT
Platelet-activating factor acetylhydrolase 1B	PAFAH1B1 or LIS1	I
Platelet-activating factor acetylhydrolase 2 Platelet-activating factor receptor Poly (ADP-ribose) synthetase	PAFAH2 PAFR PARS	
Polycystic kidney and hepatic disease 1 Polycystin 1	PKHD1 PKD1	T T
Polycystin 2	PKD2	Ť
Potassium inwardly-rectifying channel J1	KCNJ1	Ν
Potassium inwardly-rectifying channel J11	KCNJ11	N
Potassium voltage-gated channel A1	KCNA1	N
Potassium voltage-gated channel E1	KCNE1	N N
Potassium voltage-gated channel Q1	KCNQ1 KCNQ2	N
Potassium voltage-gated channel Q2 Potassium voltage-gated channel Q3	KCNQ3	N
POU domain, class 1, transcription factor 1	POU1F1	G
(Pit1)	100111	
Prekallikrein		1
Procollagen N-protease		Ε
Progesterone receptor (RU486 binding	PGR	G
receptor)		
Pro-melanin-concentrating hormone	PMCH	G
Proopiomelanocortin	POMC	Ν
Prostaglandin (PG) D synthase,	PGDS	Ε
hematopoietic		
Prostaglandin E2 receptor		l
Prostaglandin-endoperoxidase synthase 2	PTGS2	G
Protease inhibitor 1		T
Protease nexin 2	PN2	E
Protective protein for beta-galactosidase	PPGB	
Protein C	PROC	!
Protein C inhibitor	PCI PDCC1	
Protein S	PROS1	
Prothrombin precursor	F2	1

Protoporphyrinogen oxidase Purine nucleoside phosphorylase	PPOX NP	E E
Purinergic receptor P1A1	• • •	N
Purinergic receptor P1A2		N
Purinergic receptor P1A3		Ν
Purinergic receptor P2X, 1	P2RX1	Ν
Purinergic receptor P2X, 2	P2RX2	Ν
Purinergic receptor P2X, 3	P2RX3	Ν
Purinergic receptor P2X, 4	P2RX4	Ν
Purinergic receptor P2X, 5	P2RX5	N
Purinergic receptor P2X, 6	P2RX6	N
Purinergic receptor P2X, 7	P2RX7	N
Purinergic receptor P2Y, 1	P2RY1	N
Purinergic receptor P2Y, 11	P2RY11	N
Purinergic receptor P2Y, 2	P2RY2 PC	N
Pyruvate describoxylase	PDHA	E
Pyruvate decarboxylase Pyruvate kinase	PKLR	E
Radixin	RDX	S
Renin	REN	E
Replication factor C	RFC2	E
Retinoic acid receptor, alpha	RARA	G
Retinoic acid receptor, beta	RARB	Ğ
Retinoic acid receptor, gamma	RARG	G
Retinoid X receptor, alpha	RXRA	G
Retinoid X receptor, beta	RXRB	G
Retinoid X receptor, gamma	RXRG	G
Rhesus blood group, CcEe antigens	RHCE	Т
Rhesus blood group, D antigen	RHD	T
Rhesus blood group-associated glycoprotein		T
Ribosomal protein S19	RPS19	E
RIGUI	RIGUI	G
S100 calcium-binding protein A1	S100A1	N
S100 calcium-binding protein A2	S100A2	N
S100 calcium-binding protein A3	S100A3 S100A4	N
S100 calcium-binding protein A4	S100A4 S100A5	N
S100 calcium-binding protein A5 S100 calcium-binding protein A6	S100A5 S100A6	N
S100 calcium-binding protein A6 S100 calcium-binding protein A7	S100A0 S100A7	N
S100 calcium-binding protein A8	S100A7	N
S100 calcium-binding protein A9	S100A9	N
S100 calcium-binding protein B	S100B	N
S100 calcium-binding protein P	S100P	N
SA homolog	SAH	G
SAP (SLAM-associated protein)	SH2D1A	1
Secretase, alpha		Ν
Secretase, beta		Ν
Secretase, gamma		Ν

Selectin E	SELE	Ν
Selectin L	SELL	N
Selectin P	SELP	N
Serotonin receptor, 5HT1A	HTR1A	Ν
Serotonin receptor, 5HT1B	HTR1B	N
Serotonin receptor, 5HT1C	HTR1C	Ν
Serotonin receptor, 5HT1D	HTR1D	Ν
Serotonin receptor, 5HT1E	HTR1E	Ν
Serotonin receptor, 5HT1F	HTR1F	Ν
Serotonin receptor, 5HT2A	HTR2A	Ν
Serotonin receptor, 5HT2B	HTR2B	Ν
Serotonin receptor, 5HT2C	HTR2C	Ν
Serotonin receptor, 5HT3	HTR3	Ν
Serotonin receptor, 5HT4	HTR4	Ν
Serotonin receptor, 5HT5	HTR5	Ν
Serotonin receptor, 5HT6	HTR6	Ν
Serotonin receptor, 5HT7	HTR7	Ν
Serum amyloid A	SAA	T
Serum amyloid P	SAP	T
Sjoegren (Sjogren) syndrome antigen A1	SSA1	i
Sodium channel, non-voltage gated 1, alpha	SCNN1A	Ν
Sodium channel, non-voltage gated 1, beta	SCNN1B	Ν
Sodium channel, non-voltage gated 1,	SCNN1G	Ν
gamma		
Sodium channel, voltage gated, type IV,	SCN4A	Ν
alpha polypeptide	CONTA	N.I.
Sodium channel, voltage gated, type V, alpha	I SCN5A	N
polypeptide	SCN1B	Ν
Sodium channel, voltage-gated, type 1, beta polypeptide	SCNIB	13
Solute carrier family 1 (glutamate	SLC1A1	Т
transporter), member 1	020 1/11	•
Solute carrier family 1 (glutamate	SLC1A2	Т
transporter), member 2	020 // (2	•
Solute carrier family 10 (sodium/bile acid	SLC10A1	Т
cotransporter family),member 1	525 (5) (.	·
Solute carrier family 10 (sodium/bile acid	SLC10A2	Ţ
cotransporter family),member 2		
Solute carrier family 12, member 1	SLC12A1	Т
Solute carrier family 12, member 2	SLC12A2	T
Solute carrier family 12, member 3	SLC12A3	Т
Solute carrier family 2 (facilitated glucose	SLC2A1	Т
transporter), member 1		
Solute carrier family 2 (facilitated glucose	SLC2A2	Т
transporter), member 2		
Solute carrier family 2 (facilitated glucose	SLC2A3	Т
transporter), member 3		
Solute carrier family 2 (facilitated glucose	SLC2A4	T

transporter), member 4		
Solute carrier family 2 (facilitated glucose	SLC2A5	Т
transporter), member 5		•
Solute carrier family 21, member 2	SLC21A2	Т
Solute carrier family 21, member 3	SLC21A3	Ť
Solute carrier family 22, member 5	SLC22A5	÷
Solute carrier family 3 (facilitated glucose	SLC3A1	÷
transporter), member 1	SEGGAT	•
Solute carrier family 4 (anion exchanger),	SLC4A1	Т
member 1	32047(1	'
Solute carrier family 4 (anion exchanger),	SLC4A2	Т
member 2	010 17 12	ı
Solute carrier family 4 (anion exchanger),	SLC4A3	T
member 3	010 17 10	•
Solute carrier family 5 (sodium/glucose	SLC5A1	Т
transporter), member 1	0100	•
Solute carrier family 5 (sodium/glucose	SLC5A2	Т
transporter), member 2		•
Solute carrier family 5 (sodium/glucose	SLC5A5	Т
transporter), member 5		•
Solute carrier family 5, member 3	SLC5A3	Т
Solute carrier family 6 (GAMMA-	SLC6A1	Т
AMINOBUTYRIC ACID transporter), member		
1		
Solute carrier family 6 (neurotransmitter	SLC6A3	T
transporter, dopamine), member 3	•	
Solute carrier family 6 (neurotransmitter	SLC6A2	Т
transporter, noradrenaline), member 2		
Solute carrier family 6 (neurotransmitter	SLC6A4	T
transporter, serotonin), member 4		
Solute carrier family 8 (sodium/calcium	SLC8A1	T
exchanger), member 1		
Sonic hedgehog, SHH	SHH	G
Sorcin	SRI	T
Spectrin alpha	SPTA1	S
Spectrin beta	SPTB	S
Sphingomyelinase	SMPD1	E
Stem cell factor	SCF	G
Steroid 5 alpha reductase 1	SRD5A1	E
Steroid 5 alpha reductase 2	SRD5A2	
Steroidogenic acute regulatory protein	STAR	T
Sterol carrier protein 2	SCP2	T
Succinate dehydrogenase 1	SDH1	E
Succinate dehydrogenase 2	SDH2	E
Succinate thiokinase	2024	Ε
Superoxide dismutase 1	SOD1	Ε
Superoxide dismutase 3	SOD3	E
Surfeit 1	SURF1	G

Synapsin 1a & 1b	SYN1	N
Synapsin 2a & 2b	SYN2	N
Synaptic vesicle amine transporter	SVAT	N
Synaptobrevin 1	SYB1	N
Synaptobrevin 2	SYB2	N
Synaptogyrin		N
Synaptophysin	SYP	N
Synaptosomal-associated protein, 25KD	SNAP25	
•	SYT1	N
Synaptotagmin 1		N
Synaptotagmin 2	SYT2	N
Syntaxin 1	STX1	N
Talin	TLN	G
T-BOX 1	TBX1	G
T-BOX 3	TBX3	G
TEK, tyrosine kinase, endothelial	TEK	Ε
Terminal deoxynucleotidyltransferase	TDT	1
Tetranectin	TNA	Τ
Thiolase, perioxisomal		Ε
Thiopurine S-methyltransferase	TPMT	Ε
Thrombin receptor	F2R	1
Thrombomodulin	THBD	- 1
Thrombopoietin	THPO	G
Thrombospondin	THBS1	G
Thromboxane A synthase 1	TBXAS1	1
Thromboxane A2	TXA2	- 1
Thromboxane A2 receptor	TBXA2R	i
Thy-1 T-cell antigen	THY1	i
Thymic humoral factor		i
Thymopoietin	TMPO	Ġ
Thymosin		Ī
Thyroid hormone receptor, alpha	THRA	Ġ
Thyroid hormone receptor, beta	THRB	Ğ
TIE receptor tyrosine kinase	TIE-1	G
Tip-associated protein	TAP	ı
Tissue inhibitor of metalloproteinase 1,	TIMP1	Ė
TIMP1	1 11411- 1	
Tissue inhibitor of metalloproteinase 2,	TIMP2	E
TIMP2	TIMEZ	_
	TIMES	_
Tissue inhibitor of metalloproteinase 3,	TIMP3	E
TIMP3	T11.15.4	_
Tissue inhibitor of metalloproteinase 4, TIMP4	TIMP4	Ε
Topoisomerase I		Ε
Torticollis, keloids, cryptorchidism and renal	TKCR	G
dysplasia gene)
Transcobalamin 2, TCN2	TCN2	Т
Transcription factor 2, hepatic	TCF2	-
Transferrin	TF	G
Halloicilli	IF	G

Transferrin receptor Transforming growth factor, beta 2 Transforming growth factor, beta induced Transforming growth factor, beta receptor 2 Translocation in renal carcinoma on chromosome 8 gene	TFRC TGFB2 TGFBI TGFBR2 TRC8	G G G G
Transthyretin	TTR	Т
Triosephosphate isomerase	TPI1	Ε
Tropomyosin 1 alpha	TPM1	S
Troponin C		S
Troponin I	TNNI3	S
Troponin T2, cardiac	TNNT2	S
Tuberous sclerosis 1	TSC1	G
Tuberous sclerosis 2	TSC2	G
Tumour necrosis factor (TNF) receptor	TRAF1	-
associated factor 1		
Tumour necrosis factor (TNF) receptor	TRAF2	l
associated factor 2		
Tumour necrosis factor (TNF) receptor	TRAF3	I
associated factor 3		
Tumour necrosis factor (TNF) receptor	TRAF4	1
associated factor 4		
Tumour necrosis factor (TNF) receptor	TRAF5	ı
associated factor 5	TD 4 50	
Tumour necrosis factor (TNF) receptor	TRAF6	ı
associated factor 6	TNEA	
Tumour necrosis factor alpha	TNFA	!
Tumour necrosis factor alpha receptor	TNFAR	
Tumour necrosis factor beta	TNFB	1
Tumour necrosis factor beta receptor Tumour protein p53	TNFBR	-
Tumour protein p63	TP53, P53 TP63	G G
Tyrosine hydroxylase	TH	E
Ubiquitin	111	_
Ubiquitin B	UBB	G G
Ubiquitin C	UBC	G
UDP-glucose pyrophosphorylase	080	E
UDP-glucuronosyltransferase 1	ugt1d, UGT1	E
UDP-glucuronosyltransferase 2	UGT2	E
Uncoupling protein 1	33.2	T
Uncoupling protein 3	UCP3	Ť
Undulin 1	COL14A1	s
Uridinediphosphate(UDP)-galactose-4-	GALE	Ë
epimerase		_
Uroporphyrinogen III synthase	UROS	E
Vacuolar proton pump, subunit 1	VPP1	N
Vacuolar proton pump, subunit 3	VPP3	N
Vascular endothelial growth factor	VEGF	G

550

Vasoactive intestinal polypeptide	VIP	Ν
Vasoactive intestinal polypeptide receptor	VIPR	Ν
Vasoinhibitory peptide		G
Vimentin	VIM	1
Vinculin		S
Vitamin D receptor	VDR	G
Von Hippel-Lindau gene	VHL	G
Von Willebrand factor	VWF	Τ
Werner syndrome helicase	WRN	G
Wiskott-Aldrich syndrome protein	WASP, THC	1
Wolf-Hirschhorn syndrome candidate 1 gene	WHSC1	G
Wolfram syndrome 1 gene	WFS1	S
Xanthine dehydrogenase	XDH	Ε
Zinc finger protein 3	ZIC3	S

- 246.A set of probes, said probes being antibodies or antibody fragments which interact with specific expressed proteins encoded by gene sequences of a group of genes, said probes being for detecting relevant variants (mutations and polymorphisms), e.g. nucleotide substitutions (missense, nonsense, splicing and regulatory), small deletions, small insertions, small insertion deletions, gross insertions, gross deletions, duplications, complex rearrangements and repeat variations in a target group of genes; characterised in that said group is a core group of genes consisting of substantially all of the genes defined in claim 245.
- 247.A set according to claim 245 or 246 in which a minority of said probes for listed genes are absent.
- 248.A set according to claim 245 or 246 in which a limited number of additional probes are present together with substantially all of the probes for the listed genes.
- 249.A set according to claim 245 or 246 in which a limited number of probes are replaced by probes for non-listed genes.
- 250.A set of probes for a core group of genes according to any of claims 245 to 249 in which each gene to be probed is substantially similar (greater than 85% homologous) in sequence to the respective member of the core list of genes.
- 251.A set according to any of claims 245 to 250 consisting of probes for members of a sub-group of the core group.
- 252.A set according to any preceding claim in which said probes are in the form of an array and are spatially arranged at known locations on a substrate.
- 253.A set according to any preceding claim wherein said probes are on a substrate which forms part of or consists of one or more chip plate(s), for use in a chip assay for detection of said gene variants.
- 254.A set according to any preceding claim in which said probes are mass. electrostatic or fluorescence tagged probes.
- 255.A set according to claim 252 or 253in which said substrate is a semiconductor microchip.

- 256.A set according to any preceding claim for use in a biological assay for detection of said gene variants.
- 257. A set according to any preceding claim for use in the measurement of differential gene expression levels.
- 258. A medical device including a set according to any preceding claim for use in an assay for detection of said gene variants.
- 259.A medical device including a set according to any of claims 245 to 257 for use in an array for detection of differential gene expression levels.
- 260. A method for use in assessing the genomic profile of a patient or individual, the method comprising testing for and detecting the presence or absence of DNA or RNA encoding the relevant structural variants (as defined in claim 245) in a target group of genes by hybridising a nucleic acid-containing sample from said patient or individual to a set according to any of claims 245 and 247 to 257 and relating the probe hybridisation pattern to said variations.
- 261. A method for use in assessing the the genomic profile of a patient or individual, the method comprising testing for and detecting the presence or absence of DNA or RNA encoding the relevant structural variants (as defined in claim 246) in a target group of genes by interacting an expressed-protein-containing sample from said patient or individual with a set of probes according to any of claims 246 to 257 and relating the probe interaction pattern to said variations.
- 262. Use of a set or device according to any of claims 245 to 257 for the prognosis and management of patients suffering from or at risk of experiencing the symptoms or consequences of cardiovascular disease, dysfunction and/or damage.
- 263. Use of a set or device according to any of claims 245 to 257 for predicting likely therapeutic response and adverse events following therapeutic intervention.
- 264. Use of a set or device according to any of claims 245 to 257 for predicting likely therapeutic response and adverse events following the intake of a specific drug.
- 265. Use of a set or device according to any of claims 245 to 257 for predicting likely patterns of symptom clusters (symptom profiles) in disease and the likelihood of subsequent, contingent, disease or symptoms.
- 266. Use of a set or device according to any of claims 245 to 257 for general health screening, occupational health purposes, healthcare planning on a population basis and other healthcare management utilisations.
- 267. Use of a set or device according to any of claims 245 to 257 for the development of new strategies of therapeutic intervention and in clinical trials.
- 268. Use of a set or device according to any of claims 245 to 257 for construction of and generation of algorithms for patient and healthcare management.
- 269. Use of a set or device according to any of claims 245 to 257 for modelling or assessing the impact of diseases or healthcare management strategies on individuals, groups, patient cohorts or populations
- 270. Use of a set or device according to any of claims 245 to 257 for modelling, assessing or exploring the theoretical impact of diseases and healthcare management strategies on individuals, groups, patient cohorts or populations.
- 271. Use of a set or device according to any of claims 245 to 257 for predicting optimum configuration/management of thereapeutic intervention.

- 272.A method according to claim 260 or 261 in which the identification of gene variants is indicative of a higher risk of developing the symptoms or consequences of cardiovascular disease, dysfunction and/or damage for the patient or individual.
- 273. A method for generating a model to assess whether a patient or individual or population or group is or are likely to develop the symptoms or consequences of cardiovascular disease. dysfunction and/or damage which method comprises:
- obtaining DNA or RNA or protein samples from patients or individuals diagnosed as suffering from the symptoms or consequences of cardiovascular disease, dysfunction and/or damage;
- obtaining DNA or RNA or protein samples from a control group of subjects diagnosed as not suffering from the symptoms or consequences of cardiovascular disease, dysfunction and/or damage;
- iii) analysing the samples obtained in i) and ii) to identify the polymorphic variations encoded in the core group of genes as defined in any of claims 245 to 251;
- iv) calculating the frequencies of these alleles in the samples from i) and ii);
- v) comparing the frequencies of these alleles in i) and ii);
- vi) performing a statistical analysis on the results from v) in order to generate a model for assessing the risk of developing the symptoms or consequences of cardiovascular disease, dysfunction and/or damage.
- A method for assessing whether a given subject will be at risk of developing symptoms, which comprises comparing said subject's genotype with a model generated by the method of claim 273.
- 275. A method according to any of claims 260, 261, 273 and 274 wherein at least one step is computer-controlled.
- 276. An assay suitable for use in a method according to any of claims 260, 261, 273 and 274; said assay comprising means for determining the presence or absence of relevant polymorphic variants of the core group of genes as defined in any of claims 245 to 251 in a biological sample.
- 277. A formatted assay technique (kit) for use in assessing the risk of a patient or individual developing the symptoms or consequences of cardiovascular disease, dysfunction and/or damage; said kit comprising:
 - i) means for testing for the presence or absence or DNA or RNA encoding relevant polymorphic variants of the core group of genes as defined in claim 245 or 247 to 251 in a sample of human DNA;
 - ii) reagents for use in the detection process
 - iii) readout indicating the probability of a patient or individual developing the symptoms or consequences of cardiovascular disease, dysfunction and/or damage.
- 278. A formatted assay technique (kit) for use in assessing the risk of a patient or individual developing the symptoms or consequences of cardiovascular disease, dysfunction and/or damage; said kit comprising:
 - i) means for testing for the presence or absence of proteins encoded by the core group of genes and/or relevant polymorphic variants of the core group of genes as defined in any of claims 246 to 251 in an expressed-protein-containing human sample;

- ii) reagents for use in the detection process
- iii) readout indicating the probability of a patient or individual developing the symptoms or consequences of cardiovascular disease, dysfunction and/or damage.
- 279. A set of probes according to claim 245, wherein the probes are selected from the group consisting of oligonucleotides and polynucleotides.
- 280.A set of nucleotide probes for detecting relevant variants (mutations and polymorphisms), e.g. nucleotide substitutions (missense, nonsense, splicing and regulatory), small deletions, small insertions, small insertion deletions, gross insertions, gross deletions, duplications, complex rearrangements and repeat variations in a target group of genes which relate to dysfunction, damage or disease of the gastrointestinal tract; said probes being complementary to DNA and RNA sequences of said group of genes; characterised in that said group is a core group of genes consisting of substantially all of the following:

KEY TO 'PROTEIN FUNCTION' COLUMN

- E ENZYME
- T TRANSPORT & STORAGE
- S STRUCTURAL
- I IMMUNITY
- N NERVOUS TRANSMISSION
- G GROWTH & DIFFERENTIATION

GASTROINTESTINAL GENE LIST	HUGO gene symbol	Protein function
11beta hydroxysteroid dehydrogenase 2	HSD11B2	E
17beta hydroxysteroid dehydrogenase 1	HSD17B1	Ē
17beta hydroxysteroid dehydrogenase 3	HSD17B3	Ē
17beta hydroxysteroid dehydrogenase 4	HSD17B4	Ē
17beta hydroxysteroid oxidoreductase		E
2,3-bisphosphoglycerate mutase	BPGM	E
3 beta hydroxysteroid dehydrogenase 2	HSD3B2	E
6-phosphofructo-2-kinase	PFKFB1	E
Acetoacetyl 1-CoA-thiolase	ACAT1	E
Acetoacetyl 2-CoA-thiolase	ACAT2	E
Acetyl CoA carboxylase	ACC	E
Acetyl CoA carboxylase alpha	ACACA	E
Acetylcholine receptor, nicotinic, gamma	CHRNG	N
Acetylcholinesterase	ACHE	E
Acid phosphatase 2, lysosomal	ACP2	E
Actin, alpha, cardiac	ACTC	S
Actin, alpha, skeletal	ACTA1	S
Actin, alpha, smooth, aortic	ACTA2	S
Actin, beta	ACTB	S
Actin, gamma 2	ACTG2	S E
Acyl CoA dehydrogenase, long chain	ACADL	E

Acyl CoA dehydrogenase, medium chain Acyl CoA dehydrogenase, short chain Acyl CoA dehydrogenase, very long chain Acyl CoA synthetase, long chain, 1 Acyl CoA synthetase, long chain, 2 Acyl CoA synthetase, long chain, 4 Acyl malonyl condensing enzyme Acyl-CoA thioesterase Adaptin, beta 3A Adenine phosphoribosyltransferase Adenomatous polyposis coli tumour supressor	ACADM ACADS ACADVL LACS1 LACS2 ACS4 ADTB3A APRT APC	
gene	ADORA1	
Adenosine receptor A1 Adenosine receptor A2A	ADORA1 ADORA2A	N
Adenosine receptor A2B	ADORA2B	N N
Adenosine receptor A3	ADORA3	N
Adenylate cyclase 1	ADCY1	E
Adenylate cyclase 2	ADCY2	E
Adenylate cyclase 3	ADCY3	Ē
Adenylate cyclase 4	ADCY4	E
Adenylate cyclase 5	ADCY5	Ε
Adenylate cyclase 6	ADCY6	E
Adenylate cyclase 7	ADCY7	Ε
Adenylate cyclase 8	ADCY8	Ε
Adenylate cyclase 9	ADCY9	Ε
Adrenergic receptor, alpha1	ADRA1	Ν
Adrenergic receptor, alpha2	ADRA2	Ν
Adrenergic receptor, beta1	ADRB1	Ν
Adrenergic receptor, beta2	ADRB2	Ν
Adrenergic receptor, beta3	ADRB3	Ν
Adrenocorticotrophic hormone (ACTH) receptor	ACTHR	G _
Alanine aminotransferase	ACVT	T
Alanine-glyoxylate aminotransferase	AGXT	E
Albumin, ALB	ALB	Ţ
Alcohol dehydrogenase 1	ADH1	E
Alcohol dehydrogenase 2	ADH2 ADH3	Ε
Alcohol dehydrogenase 3 Alcohol dehydrogenase 4	ADH4	E
Alcohol dehydrogenase 5	ADH5	E
Alcohol dehydrogenase 6	ADH6	E
Alcohol dehydrogenase 7	ADH7	Ε
Aldehyde dehydrogenase 1	ALDH1	E
Aldehyde dehydrogenase 2	ALDH2	E
Aldehyde dehydrogenase 5	ALDH5	E
Aldehyde dehydrogenase 6	ALDH6	E
Aldehyde dehydrogenase 7	ALDH7	E
Aldolase A	ALDOA	E
	· · · · · · · · · · · · · · · · · · ·	-

Aldolase B	ALDOB	Ε
Aldolase C	ALDOC	Ε
Aldose reductase		Т
Aldosterone receptor	MLR	G
Alkaline phosphatase, liver/bone/kidney	ALPL	Т
Alpha 2 macroglobulin	A2M	1
alpha1-antitrypsin	PI	E
alpha2-antiplasmin	PLI	Ε
alpha-actinin 2	ACTN2	G
alpha-actinin 3	ACTN3	G
alpha-amylase		Ε
alpha-dextrinase		Ε
alpha-Galactosidase A	GLA	Ε
alpha-ketoglutarate dehydrogenase		Ε
alpha-L-Iduronidase	IDUA	Ε
Aminomethyltransferase	AMT	Ε
Aminopeptidase P	XPNPEP2	Ε
Amphiregulin	AREG	G
Amylo-1,6-glucosidase	AGL	Ε
Angiopoietin 1	ANGPT1	G
Angiopoietin 2	ANGPT2	G
Angiotensin converting enzyme	ACE, DCP1	E
Angiotensin receptor 1	AGTR1	T
Angiotensin receptor 2	AGTR2	T
Angiotensinogen	AGT	Ε
Antidiuretic hormone receptor	ADHR	T
Antithrombin III	AT3	Ε
AP-2, alpha	TFAP2A	G
AP-2, beta	TFAP2B	G
AP-2, gamma	TFAP2C	G
Apolipoprotein A I	APOA1	Т
Apolipoprotein A II	APOA2	Т
Apolipoprotein B	APOB	T
Apolipoprotein C1	APOC1	Т
Apolipoprotein C2	APOC2	T
Apolipoprotein C3	APOC3	Т
Apolipoprotein D	APOD	T
Apolipoprotein E	APOE	T
Apolipoprotein H	APOH	T
Aquaporin 1	AQP1	T
Aquaporin 2	AQP2	T
Arginine vasopressin	AVP	Ν
Arginine vasopressin receptor 1A	AVPR1A	Ν
Arginine vasopressin receptor 1B	AVPR1B	Ν
Arginine vasopressin receptor 2	AVPR2	Ν
Arginosuccinate lyase	ASL	Ε
Arginosuccinate synthetase	ASS	Ε
Aryl hydrocarbon receptor nuclear translocator	ARNT	T

Arylsulfatase B Aspartate transaminase Aspartylglucosaminidase Ataxia telangiectasia gene, AT ATP/ADP translocase Atrial natriuretic peptide Atrial natriuretic peptide receptor A Atrial natriuretic peptide receptor B Atrial natriuretic peptide receptor C Autoimmune regulator, AIRE Azoospermia factor 1 beta 2 microglobulin beta-galactosidase beta-glucosidase, neutral beta-Glucuronidase beta-ketoacyl reductase Bile acid coenzyme A: amino acid N-	ARSA ARSB AGA ATM ANP NPR1 NPR2 NPR3 AIRE AZF1 B2M GLB1 GUSB	EETEGEGGGG-G-EEEE
acyltransferase Bile salt export pump Bile salt-stimulated lipase Bilirubin UDP-glucuronosyltransferase Biliverdin reductase Bradykinin receptor B1 Bradykinin receptor B2 Branched chain keto acid dehydrogenase E1, alpha polypeptide	BSEP, PFIC2 CEL BCKDHA	T E E T I E
Branched chain keto acid dehydrogenase E1, beta polypeptide	BCKDHB	Ε
Brush border guanylyl cyclase Ca(2+) transporting ATPase, fast twitch Ca(2+) transporting ATPase, slow twitch Cadherin E Cadherin EP Cadherin N Cadherin P Calcitonin/Calcitonin gene-related peptide alpha	ATP2A1 ATP2A2 CDH1 CDH2 CDH3 CALCA	ETTGGGGZ
Calcium channel, voltage-dependent, alpha 1F subunit	CACNA1F	Ν
Calcium channel, voltage-dependent, Alpha- 1B (CACNL1A5)	CACNA1B	N
Calcium channel, voltage-dependent, Alpha- 1C	CACNA1C	N
Calcium channel, voltage-dependent, Alpha- 1D	CACNA1D	N
Calcium channel, voltage-dependent, Alpha- 1E (CACNL1A6)	CACNA1E	Ν

Calcium channel, voltage-dependent, Alpha- 2/delta	CACNA2	N
Calcium channel, voltage-dependent, Beta 1	CACNB1	N
Calcium channel, voltage-dependent, Beta 3	CACNB3	N
Calcium channel, voltage-dependent,	CACNG2	N
Neuronal, Gamma		
Calcium channel, voltage-dependent, T-type		N
Calcium sensing receptor	CASR	T
Calmodulin 1	CALM1	Ġ
Calmodulin 2	CALM2	G
Calmodulin 3	CALM3	Ğ
Calmodulin dependant kinase		T
Calmodulin-dependant protein kinase II	CAMK2A	G
Calnexin	CANX	G
Canalicular multispecific organic anion	CMOAT	T
transporter		
Carbamoylphosphate synthetase 1	CPS1	Ε
Carbamoylphosphate synthetase 2	CPS2	Ε
Carbonic anhydrase 3	CA3	Ε
Carbonic anhydrase 4	CA4	Ε
Carbonic anhydrase, alpha	CA1	Ε
Carbonic anhydrase, beta	CA2	Ε
Carboxylesterase 1	CES1	Ε
Carboxypeptidase	CPN	Ε
Carnitine acylcarnitine translocase	CACT	E
Carnitine palmitoyltransferase I	CPT1A	Ε
Carnitine palmitoyltransferase II	CPT2	Ε
Carnitine transporter protein	CDSP, SCD	T
Cartilage-hair hypoplasia gene	CHH	Ν
Catalase	CAT	-
Cathepsin B		E
Cathepsin D		E
Cathepsin E		E
Cathepsin G	CTSG	E
Cathepsin H	0701/	E
Cathepsin K	CTSK	E
Cathepsin L		E
Cathepsin S	004	E
CD1	CD1	1
CD4	CD4	1
Cell adhesion molecule, intercellular, ICAM	ICAM1	G
Cell adhesion molecule, leukocyte-endothelial,	LECAM1	G
LECAM (CD62)	LCAM	_
Cell adhesion molecule, liver, LCAM	LCAM	G
Cell adhesion molecule, neural, NCAM1	NCAM120	G
Cell adhesion molecule, neural, NCAM120	NCAM2	G
Cell adhesion molecule, neural, NCAM2	NCAM2	G G
Cell adhesion molecule, platelet-endothelial,	PECAM1	G

Cell adhesion molecule, vascular, VCAM VCAM1 G c-erbB2 ERBB2 G c-erbB3 ERBB3 G c-erbB4 ERBB4 G Ceruloplasmin precursor CP E Chemokine receptor CCR2 CCR2 I Chemokine receptor CCR3 CCR3 I Chemokine receptor CCR5 CCR5 I Chemokine receptor CXCR4 CXCR4 I Chitotriosidase chit E Chloride channel 5 CLCN5 S Chloride channel KB CLCNKB S Cholecystokinin CCK N Cholecystokinin B receptor CCKBR N Cholesterol ester hydroxylase E FIC1 G Gene CHAT E CHAT E Chromogranin A CHGA G CHAT E Chymotrypsinogen E E CHAT E Clusterin CLU G COL1A1 G Collagen I alp	PECAM	•	
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Cockayne syndrome gene, CKN1 Collagen I alpha 1 Collagen I alpha 2 Collagen II alpha 1 Collagen III alpha 1 Collagen III alpha 1 Collagen IV alpha 1 Collagen IV alpha 2 Collagen IV alpha 3 Collagen IV alpha 4 Collagen IV alpha 5 Collagen IV alpha 6 Collagen IV alpha 3 Collagen IX alpha 2 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 1 Collagen IX alpha 1 Collagen IX alpha 2 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 1 Collagen IX alpha 3 Collagen IX alpha 1 Collagen IX alpha 3 Collagen IX alpha 1 Collagen IX alpha 1 Collagen IX alpha 3 Collagen IX alpha 1 Collagen IX alpha 3 Collagen IX alpha 1 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 1	Clusterin	CLU	G
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Collagen I alpha 2 Collagen II alpha 1 Collagen III alpha 1 Collagen III alpha 1 Collagen IV alpha 1 Collagen IV alpha 1 Collagen IV alpha 2 Collagen IV alpha 3 Collagen IV alpha 4 Collagen IV alpha 5 Collagen IV alpha 6 Collagen IX alpha 2 Collagen IX alpha 2 Collagen IX alpha 3 Collagen IX alpha 6 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 1 Collagen IX alpha 2 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 1 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 1 Colla	Cockayne syndrome gene, CKN1	CKN1	G
Collagen III alpha 1 Collagen III alpha 1 Collagen IV alpha 1 Collagen IV alpha 1 Collagen IV alpha 2 Collagen IV alpha 3 Collagen IV alpha 4 Collagen IV alpha 5 Collagen IV alpha 6 Collagen IV alpha 6 Collagen IX alpha 2 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 1 Collagen IX alpha 1 Collagen IX alpha 2 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 1 Collagen IX alpha 1 Collagen IX alpha 1 Collagen IX alpha 1 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 1 Coll	Collagen I alpha 1	COL1A1	
Collagen III alpha 1 Collagen IV alpha 1 Collagen IV alpha 2 Collagen IV alpha 3 Collagen IV alpha 3 Collagen IV alpha 4 Collagen IV alpha 5 Collagen IV alpha 5 Collagen IV alpha 6 Collagen IX alpha 2 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 1 Collagen V alpha 1 Collagen IX alpha 2 Collagen IX alpha 2 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 1 Collagen IX alpha 1 Collagen IX alpha 1 Collagen IX alpha 1 Collagen IX alpha 1 Collagen IX alpha 1 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 1 Collag	Collagen I alpha 2	COL1A2	S
Collagen IV alpha 1 Collagen IV alpha 2 Collagen IV alpha 3 Collagen IV alpha 3 Collagen IV alpha 4 Collagen IV alpha 5 Collagen IV alpha 5 Collagen IV alpha 6 Collagen IX alpha 2 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 1 Collagen V alpha 1 Collagen V alpha 1 Collagen IX alpha 2 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 1 Collagen IX alpha 1 Collagen IX alpha 1 Collagen IX alpha 1 Collagen IX alpha 1 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 1 Collagen	Collagen II alpha 1	COL2A1	
Collagen IV alpha 2 Collagen IV alpha 3 Collagen IV alpha 3 Collagen IV alpha 4 Collagen IV alpha 5 Collagen IV alpha 6 Collagen IV alpha 6 Collagen IX alpha 2 Collagen IX alpha 3 Collagen IX alpha 3 Collagen receptor Collagen V alpha 1 Collagen V alpha 2 Collagen V alpha 2 Collagen V alpha 2 Collagen V alpha 3 Collagen V alpha 3 Collagen VI alpha 1 Collagen VI alpha 3 Collagen VI alpha 3 Collagen VI alpha 3 Collagen VI alpha 3 Collagen VI alpha 3 Collagen VI alpha 3 Collagen VI alpha 1 Collagen VI alpha 1 Collagen VI alpha 3 Collagen VI alpha 1 Collagen VI alpha 1 Collagen X alpha 1 Collagen X alpha 1 Collagen X alpha 1 Collagen X alpha 1 Collagen X alpha 1 Collagen X alpha 1 Collagen X alpha 1 Collagen X alpha 1	Collagen III alpha 1	COL3A1	S
Collagen IV alpha 3 Collagen IV alpha 4 Collagen IV alpha 5 Collagen IV alpha 6 Collagen IX alpha 2 Collagen IX alpha 3 Collagen IX alpha 3 Collagen IX alpha 3 Collagen receptor Collagen V alpha 1 Collagen V alpha 1 Collagen V alpha 2 Collagen V alpha 1 Collagen V alpha 1 Collagen V alpha 2 Collagen V alpha 3 Collagen VI alpha 3 Collagen VI alpha 3 Collagen VI alpha 3 Collagen VI alpha 3 Collagen VI alpha 1 Collagen VI alpha 1 Collagen VI alpha 3 Collagen VI alpha 1 Collagen VI alpha 1 Collagen VI alpha 1 Collagen VI alpha 1 Collagen VI alpha 1 Collagen VI alpha 1 Collagen X alpha 1 Collagen X alpha 1 Collagen X alpha 1 Collagen X alpha 1	Collagen IV alpha 1	COL4A1	S
Collagen IV alpha 4 Collagen IV alpha 5 Collagen IV alpha 6 Collagen IX alpha 2 Collagen IX alpha 3 Collagen receptor Collagen V alpha 1 Collagen V alpha 1 Collagen V alpha 2 Collagen V alpha 1 Collagen V alpha 1 Collagen V alpha 1 Collagen VI alpha 3 Collagen VI alpha 3 Collagen VI alpha 1 Collagen VI alpha 3 Collagen VI alpha 3 Collagen VI alpha 3 Collagen VI alpha 1 Collagen VI alpha 1 Collagen VI alpha 3 Collagen VI alpha 1 Collagen VI alpha 1 Collagen VI alpha 1 Collagen VI alpha 1 Collagen VI alpha 1 Collagen VI alpha 1 Collagen VI alpha 1 Collagen X alpha 1 Collagen X alpha 1 Collagen X alpha 1	Collagen IV aipha 2	COL4A2	S
Collagen IV alpha 5 Collagen IV alpha 6 Collagen IX alpha 2 Collagen IX alpha 3 Collagen receptor Collagen V alpha 1 Collagen V alpha 1 Collagen V alpha 2 Collagen VI alpha 1 Collagen VI alpha 1 Collagen VI alpha 3 Collagen VI alpha 3 Collagen VI alpha 3 Collagen VI alpha 3 Collagen VI alpha 3 Collagen VI alpha 3 Collagen VI alpha 1 Collagen VI alpha 1 Collagen VI alpha 3 Collagen VI alpha 1 Collagen VI alpha 1 Collagen VI alpha 1 Collagen VI alpha 1 Collagen VI alpha 1 Collagen VI alpha 1 Collagen X alpha 1 Collagen X alpha 1	Collagen IV alpha 3	COL4A3	S
Collagen IV alpha 6 Collagen IX alpha 2 Collagen IX alpha 3 Collagen receptor Collagen V alpha 1 Collagen V alpha 1 Collagen V alpha 2 Collagen VI alpha 1 Collagen VI alpha 1 Collagen VI alpha 2 Collagen VI alpha 2 Collagen VI alpha 3 Collagen VI alpha 3 Collagen VI alpha 1 Collagen VI alpha 3 Collagen VI alpha 1 Collagen VI alpha 1 Collagen VI alpha 1 Collagen VI alpha 1 Collagen VI alpha 1 Collagen VI alpha 1 Collagen X alpha 1 Collagen X alpha 1 Collagen X alpha 1	Collagen IV alpha 4	COL4A4	S
Collagen IX alpha 2 Collagen IX alpha 3 Collagen receptor Collagen V alpha 1 Collagen V alpha 2 Collagen V alpha 2 Collagen VI alpha 1 Collagen VI alpha 2 Collagen VI alpha 3 Collagen VI alpha 3 Collagen VI alpha 1 Collagen VI alpha 1 Collagen VI alpha 3 Collagen VI alpha 1 Collagen VI alpha 1 Collagen VI alpha 1 Collagen VI alpha 1 Collagen VI alpha 1 Collagen X alpha 1 Collagen X alpha 1 Collagen X alpha 1			S
Collagen IX alpha 3 Collagen receptor Collagen V alpha 1 Collagen V alpha 2 Collagen VI alpha 1 Collagen VI alpha 1 Collagen VI alpha 2 Collagen VI alpha 2 Collagen VI alpha 3 Collagen VI alpha 3 Collagen VI alpha 1 Collagen VI alpha 1 Collagen VI alpha 1 Collagen VI alpha 1 Collagen X alpha 1 Collagen X alpha 1 Collagen X alpha 1 Collagen X alpha 1	= · · · · · · · · · · · · · · · · · · ·		S
Collagen V alpha 1 Collagen V alpha 2 Collagen VI alpha 1 Collagen VI alpha 1 Collagen VI alpha 2 Collagen VI alpha 2 Collagen VI alpha 3 Collagen VII alpha 1 Collagen VII alpha 1 Collagen X alpha 1 Collagen X alpha 1 Collagen X alpha 1 Collagen X alpha 1 Collagen X alpha 1 Collagen X alpha 1 Collagen X alpha 1			S
Collagen V alpha 1 Collagen V alpha 2 Collagen VI alpha 1 Collagen VI alpha 1 Collagen VI alpha 2 Collagen VI alpha 2 Collagen VI alpha 3 Collagen VII alpha 1 Collagen VII alpha 1 Collagen X alpha 1 Collagen X alpha 1 Collagen X alpha 1 Collagen X alpha 1 Collagen X alpha 1 Collagen X alpha 1 Collagen X alpha 1			S
Collagen V alpha 1 Collagen V alpha 2 Collagen VI alpha 1 Collagen VI alpha 1 Collagen VI alpha 2 Collagen VI alpha 2 Collagen VI alpha 3 Collagen VII alpha 1 Collagen VII alpha 1 Collagen X alpha 1 Collagen X alpha 1 Collagen X alpha 1 Collagen X alpha 1 Collagen X alpha 1 Collagen X alpha 1 Collagen X alpha 1	•		S
Collagen VI alpha 1COL6A1SCollagen VI alpha 2COL6A2SCollagen VI alpha 3COL6A3SCollagen VII alpha 1COL7A1SCollagen X alpha 1COL10A1SCollagen X alpha 1COL11A1S	-		S
Collagen VI alpha 2COL6A2SCollagen VI alpha 3COL6A3SCollagen VII alpha 1COL7A1SCollagen X alpha 1COL10A1SCollagen X alpha 1COL11A1S	•		S
Collagen VI alpha 3COL6A3SCollagen VII alpha 1COL7A1SCollagen X alpha 1COL10A1SCollagen X alpha 1COL11A1S			S
Collagen VII alpha 1COL7A1SCollagen X alpha 1COL10A1SCollagen X alpha 1COL11A1S			S
Collagen X alpha 1 COL10A1 S Collagen X alpha 1 COL11A1 S			S
			S
			S
Collagen XI alpha 2 COL11A2 S	= ,		S
	Collagen XI alpha 2	COL11A2	S

Collagen XVII alpha 1	COL17A1	S
Colony-stimulating factor 1	CSF1	Ğ
Complement component C1 inhibitor	C1NH	ī
Complex I		Ē
Complex II		Ε
Complex III		E
Corticotrophin-releasing hormone	CRH	T
Corticotrophin-releasing hormone receptor	CRHR1	Т
C-reactive protein CRP		i
Creb binding protein	CREBBP	G
Cu2+ transporting ATPase beta polypeptide	ATP7B	Ε
Cubilin	CUBN	T
Cyclic AMP-dependent protein kinase	PKA	Ε
Cyclic nucleotide phosphodiesterase 1B	PDE1B	E
Cyclic nucleotide phosphodiesterase 1B1	PDE1B1	E
Cyclic nucleotide phosphodiesterase 2A3	PDE2A3	Ε
Cyclic nucleotide phosphodiesterase 3A	PDE3A	E
Cyclic nucleotide phosphodiesterase 3B	PDE3B	E
Cyclic nucleotide phosphodiesterase 4A	PDE4A	Ε
Cyclic nucleotide phosphodiesterase 4C	PDE4C	Ε
Cyclic nucleotide phosphodiesterase 5A	PDE5A	E
Cyclic nucleotide phosphodiesterase 6A	PDE6A	Ε
Cyclic nucleotide phosphodiesterase 6B	PDE6B	Ε
Cyclic nucleotide phosphodiesterase 7	PDE7	E
Cyclic nucleotide phosphodiesterase 8	PDE8	E
Cyclic nucleotide phosphodiesterase 9A	PDE9A	E
Cyclin F	CCNF	G
Cyclin-dependent kinase 2	CDK2	G
Cyclin-dependent kinase inhibitor 1C (P57,	CDKN1C	G
KIP2)	00V4	~
Cycloxygenase 1	COX1	E
Cyclooxygenase 2 CYP11A1	COX2 CYP11A1	E E
CYP11B1	CYP11B1	
CYP11B2	CYP11B1	E
CYP17	CYP17	E
CYP19	CYP19	E
CYP1A1	CYP1A1	E
CYP1A2	CYP1A2	E
CYP1B1	CYP1B1	E
CYP21	CYP21	Ē
CYP24	CYP24	Ē
CYP27	CYP27	Ē
CYP27B1	PDDR	Ē
CYP2A1	CYP2A1	Ē
CYP2A13	CYP2A13	Ē
CYP2A3	CYP2A3	Ē
CYP2A6V2	CYP2A6V2	Ē
	· - · -	-

Dopamine receptors D2 Dopamine receptors D3 Dopamine receptors D4 Dopamine receptors D5 Dynamin Dynein Dystrophia myotonica Dystrophia myotonica, atypical	DRD2 DRD3 DRD4 DRD5 DNM1 DM, DMPK DM2	N N N N G G H H
Dystrophin	DMD	S
EB1 Elastase 1	ELAS1	G E
Elastase 2	ELAS2	E
Electron-transfering-flavoprotein alpha	ETFA	T
Electron-transfering-flavoprotein beta Electron-transferring flavoprotein	ETFB ETFDH	T E
dehydrogenase	- LII DII	-
Endothelin 1	EDN1	Ν
Endothelin 2	EDN2	N
Endothelin 3	EDN3	N
Endothelin converting enzyme	ECE1 EDNRA	N
Endothelin receptor type A Endothelin receptor type B	EDNRB	N N
Endottelli receptor type b	ENO1	E
Enoyl CoA isomerase		E
Enoyl CoA reductase		E
Enteric lipase		T
Enterokinase	PRSS7, ENTK	E
Ephrin receptor tyrosine kinase A	EPHA	G
Ephrin receptor tyrosine kinase B	EPHB	G
Epidermal growth factor	EGF	G
Epidermal growth factor receptor	EGFR FDD44	G S
Erythrocyte membrane protein band 4.1	EPB41 EPO	3
Erythropoietin Excision repair complementation group 2	ERCC2	Ė
protein	ENGOZ	_
Excision repair complementation group 2	ERCC3	Ε
protein	_,	
Eyes absent 1	EYA1	G
Faciogenital dysplasia	FGD1, FGDY	T
Factor 1 (No. one)	F1	1
Factor B, properdin		- 1
Factor D	1154	
Factor H	HF1	- !
Factor I (letter I)	lF F3	-
Factor III Factor IX	F9	l t
Factor V	F5	1
Factor VII	F7	i
· * ••		•

Factor VIII	F8	1
Factor X	F10	1
Factor XI	F11	ł
Factor XII	F12	1
Factor XIII A & B	F13A & F13B	1
FADH dehydrogenase		Ε
Fanconi anemia, complementation group A	FANCA	Т
Fanconi anemia, complementation group C	FANCC	Т
Fanconi anemia, complementation group D	FANCD	T
Fatty acid binding proteins FABP1		Т
Fatty acid binding proteins FABP2	FABP2	T
Fatty acid binding proteins FABP3		T
Fatty acid binding proteins FABP4		Т
Fatty acid binding proteins FABP5		T
Fatty acid binding proteins FABP6		T
Ferritin, H subunit		T
Ferritin, L subunit	FTL	T
Fibroblast growth factor	FGF1	G
Fibroblast growth factor receptor 1	FGFR1	G
Fibroblast growth factor receptor 2	FGFR2	G
Fibroblast growth factor receptor 3	FGFR3	G
Fibronectin precursor	FN1	G
Flavin-containing monooxygenase 1	FMO1	E
Flavin-containing monooxygenase 2	FMO2	E
Flavin-containing monooxygenase 3	FMO3	E
Flavin-containing monooxygenase 4	FMO4	E
Folic acid receptor	FOLR	G
Follicle stimulating hormone receptor	FSHR, ODG1	G
Follicle stimulating hormone, FSH	FSHB	G
Forkhead transcription factor 10	FKHL10	G
Forkhead transcription factor 14	FKHL14	G
Fragile site, folic acid type, rare, fra(X) A	FRAXA	И
Fructose-1,6-diphosphatase	FBP1	Ε
Fucosidase alpha-L-1	FUCA1	E
Fucosidase alpha-L-2	ELITO	E
Fucosyltransferase 2	FUT2 FUT3	
Fucosyltransferase 3	FH	T E
Fumarase	GTBP, MSH6	G
G/T mismatch binding protein Galactocerebrosidase	GALC	E
	GALT	E
Galactose 1-phosphate uridyl-transferase Galactosyltransferase 1	GT1	G
•	GGTA1	G
Galactosyltransferase, alpha 1,3 Galactosyltransferase, beta 3	B3GALT	G
Galanin	GAL	N
Galanin receptor	GALNR1	N
Gamma-glutamyltransferase 1	GGT1	T
Gamma-glutamyltransferase 2	GGT2	Ť
Gamma-glutarnylliansterase 2	0012	ı

Gap junction protein beta 1 Gastric inhibitory polypeptide GIP Gastric inhibitory polypeptide receptor, GIPR Gastric Intrinsic factor, GIF Gastric lipase, LIPF	GJB1 GIP GIPR GIF	TTTET
Gastrin Gastrin releasing peptide Gastrin releasing peptide receptor Glial-cell derived neurotrophic factor (GDNF)	GAS GRP GRPR	G T T N
receptor Glial-cell derived neurotrophic factor, GDNF Glucagon receptor Glucagon synthase	GDNF GCGR	N G T
Glucagon-like peptide receptor 1 Glucokinase Glucose-6-phosphatase	GLP1R GCK G6PC	G E E
Glucose-6-phosphatase translocase Glucose-6-phosphate dehydrogenase	G6PT1 G6PD	E
Glucosidase, acid alpha Glutamate dehydrogenase Glutamine synthase	GAA GLUD1	E E E
Glutathione Clutathione Clutathione CRY2	GSH GPX2	T T E
Glutathione peroxidase, GPX2 Glutathione S-transferase, GSTZ1 Glyceraldehyde-3-phosphate dehydrogenase,	GSTZ1	E
GAPDH Glycerol kinase	GK	E
Glycinamide ribonucleotide (GAR) transformylase	GART	E
Glycine dehydrogenase Glycogen branching enzyme	GLDC GBE1	E
Glycogen phosphorylase	PYGL	Ε
Glycogen synthase 1 (muscle) Glycogen synthase 2 (liver)	GLYS1 GYS2	E
Glycosyltransferases, ABO blood group	ABO	E
Gonadotropin releasing hormone Goosecoid GSC	GNRH	G G
Growth bases a second	GAX GHR	G G
Growth hormone receptor Guanylin	GUCA2	T
H(+), K(+) - ATPase	ATP4B	N
Haem oxygenase		Т
Haemoglobin alpha 1	HBA1	T
Haemoglobin alpha 2	HBA2 HBB	T
Haemoglobin beta Haemoglobin delta	HBD	T
Haemoglobin gamma A	HBG1	Ť

Haemoglobin gamma B Haemoglobin gamma G Heat shock protein, HSP60 Heat shock protein, HSP70 Heat shock protein, HSP90 Heat shock protein, HSPA1 Heat shock protein, HSPA2	HBG2 HBGG	T T ! !
Heparan sulfamidase Heparin binding epidermal growth factor	HBEGF	E G
Heparin Cofactor II	HCF2	1
Hepatic nuclear factor-3-beta	HNF3B	Ε
Hepatic nuclear factor-4-alpha	HNF4A	E
Hepatitis B virus integration site 1	HVBS1	1
Hepatitis B virus integration site 2	HVBS6	١
Hepatocyte growth factor	HGF HPS	G
Hermansky-pudlak syndrome gene	HK1	T E
Hexokinase 1 Hexokinase 2	HK2	E
Hexosaminidase A	HEXA,TSD	E
Hexosaminidase B	HEXB	E
Histamine receptors, H1		Ν
Histamine receptors, H2		N
Histamine receptors, H3		N
Histatin 1		
Histatin 2	HTN3	1
Histatin 3 HLA-B associated transcript 1	BAT1	i
HMG-CoA lyase	HMGCL	Ė
HMG-CoA reductase	HMGCR	Ε
HMG-CoA synthase	HMGCS2	Ε
Holocarboxylase synthetase	HLCS	Ε
Hormone-sensitive lipase	HSL	Ε
Hydroxyacyl glutathione hydrolase	HAGH	E
Hypoxanthine-guanine	HPRT	Ε
phosphoribosyltransferase, HGPRT		ı
IC7 A and B Iduronate 2 sulphatase	IDS	Ė
Immunoglobulin E (IgE) reponsiveness gene	IGER	Ī
Immunoglobulin E (IgE) serum concentration	IGES	1
regulator gene		
Immunoglobulin gamma (IgG) 2	IGHG2	- 1
Immunoglobulin heavy mu chain	IGHM	
Immunoglobulin J polypeptide	IGJ	l
Immunoglobulin kappa constant region	IGKC	
Immunoglobulin kappa variable region	IGKV INHA	ι G
Inhibin, alpha Inhibin, beta A	INHBA	G
Inhibin, beta B	INHBB	G

Inhibin, beta C	INHBC	G
Inositol 1,4,5-triphosphate receptor 3	ITPR3	G
Insulin	INS	G
Insulin receptor	INSR	G
Insulin-like growth factor 1	IGF1	G
Insulin-like growth factor 1 receptor	IGF1R	G
Insulin-like growth factor 2	IGF2	G
Insulin-like growth factor 2 receptor	IGF2R	G
Integrin beta 1	ITGB1	G
Integrin beta 2	ITGB2	G
Integrin beta 3	ITGB3	G
Integrin beta 6	ITGB6	G
Integrin, alpha M	ITGAM	G
Integrin, alpha X	ITGAX	G
Inter-alpha-trypsin inhibitor, IATI		E
Interferon alpha	IFNA1	1
Interferon beta	IFNB	1
Interferon gamma	IFNG	1
Interferon gamma receptor 1	IFNGR1	1
Interferon gamma receptor 2	IFNGR2	i
Interferon regulatory factor 1	IRF1	1
Interferon regulatory factor 4	IRF4	ŧ
Interleukin(IL) 1 receptor	IL1R	1 .
Interleukin(IL) 1, alpha	IL1A	I
Interleukin(IL) 1, beta	IL1B	1
Interleukin(IL) 10	IL10	1
Interleukin(IL) 10 receptor	IL10R	Ī
Interleukin(IL) 11	IL11	i
Interleukin(IL) 11 receptor	IL11R	1
Interleukin(IL) 12	IL12	ı
Interleukin(IL) 12 receptor, beta 1	IL12RB1	1
Interleukin(IL) 13	IL13	1
Interleukin(IL) 13 receptor	IL13R	1
Interleukin(IL) 2	IL2	!
Interleukin(IL) 2 receptor, alpha	IL2RA	1
Interleukin(IL) 2 receptor, gamma	IL2RG	1
Interleukin(IL) 3	IL3	t
Interleukin(IL) 3 receptor	IL3R	1
Interleukin(IL) 4	IL4	1
Interleukin(IL) 4 receptor	IL4R	1
Interleukin(IL) 5	IL5	i
Interleukin(IL) 5 receptor	IL5R	1
Interleukin(IL) 6	IL6	1
Interleukin(IL) 6 receptor	IL6R	ı
Interleukin(IL) 7	IL7	1
Interleukin(IL) 7 receptor	IL7R	l
Interleukin(IL) 8	IL8	1
Interleukin(IL) 8 receptor	IL8R	1

Interleukin(IL) 9 Interleukin(IL) 9 receptor Interleukin(IL) receptor antagonist 1 Intestinal alkaline phosphatase IAP Islet amyloid polypeptide Isocitrate dehydrogenase Isovaleric acid CoA dehydrogenase Kallikrein 3 Kallman syndrome gene 1 Ketohexokinase ketolase Kininogen, High molecular weight Kynurenine hydroxylase Kynureninease Lactase	IL9 IL9R IL1RN, IL1RA IAPP IVD KAK3 KAL1 KHK	
Laminin 5, alpha 3	LAMA3	G
Laminin 5, beta 3	LAMB3	G
Laminin 5, gamma 2	LAMC2	G
Laminin M	LAMM	G
Laminin receptor 1	LAMR1	G
Latent transforming growth factor-beta binding protein 2	LTBP2	G
Lecithin-cholesterol acyltransferase	LCAT	E
Leptin	LEP	G
Leptin receptor	LEPR	Ğ
Leukocyte-specific transcript 1	LST-1	Ī
Leukotriene A4 hydrolase		i
Leukotriene A4 synthase	LTA4S	Ė
Leukotriene B4 receptor		ī
Leukotriene B4 synthase	LTB4S	Ė
Leukotriene C4 receptor		ī
Leukotriene C4 synthase	LTC4S	Ė
Leukotriene D4/E4 receptor	2.0.0	ī
LIM homeobox protein 1	LHX1	Ġ
LIM homeobox transcription factor 1, beta	LMX1B	G
Lipoamide dehydrogenase	OGDH	E
Lipoprotein lipase	LPL	ī
Lipoprotein receptor, Low Density	LDLR	Ť
Lipoprotein, High Density	HDLDT1	Ť
Lipoprotein, Intermediate Density	1.02011	Ť
Lipoprotein, Low Density 1		Ť
Lipoprotein, Low Density 2		Ť
Lipoprotein, Very Low Density	VLDLR	Ť
Low density lipoprotein receptor-related protein		Ť
precursor	••••	٠
Lymphoid enhancer-binding factor	LEF-1	G
Lysosomal acid lipase	LIPA	E
Lysozyme	LYZ	1
Lysocyttic	- · -	•

MAD (mothers against decapentaplegic, Drosophila) homologue 4	MADH4	G
MADS box transcription-enhancer factor 2A	MEF2A	G
MADS box transcription-enhancer factor 2B	MEF2B	G
MADS box transcription-enhancer factor 2C	MEF2C	G
MADS box transcription-enhancer factor 2D	MEF2D	G
Malonyl CoA decarboxylase		Ε
Malonyl CoA transferase		Ε
Maltase-glucoamylase		E E
Mannosidase, alpha B lysosomal	MANB	
Marenostrin	MEFV	T
MAX-interacting protein 1	MXI1	G
MEK kinase, MEKK		Ε
Melanocortin 2 receptor	MC2R	T
Melanocortin 4 receptor	MC4R	T
Menin	MEN1	G
Metallothionein	A 4) /1/	Ţ
Mevalonate kinase	MVK	E
MHC Class I: A MHC Class I: B		1
MHC Class I: C		i
MHC Class I: LMP-2, LMP-7		i
MHC Class I: Tap1	ABCR, TAP1	i
MHC Class II: DP	HLA-DPB1	i
MHC Class II: DQ		i
MHC Class II: DR		ı
MHC Class II: Tap2	TAP2, PSF2	1
MHC Class II:Complementation group A	MHC2TA	ı
MHC Class II:Complementation group B	rfxank	1
MHC Class II:Complementation group C	RFX5	i
MHC Class II:Complementation group D	RFXAP	1
Microsomal triglyceride transfer protein	MTP	T
Mitochondrial trifunctional protein, alpha	HADHA	Ε
subunit		_
Mitochondrial trifunctional protein, beta subunit		E
Molybdenum cofactor synthesis 1	MOCS1	Ē
Molybdenum cofactor synthesis 2	MOCS2	E
Monoamine oxidase A Monoamine oxidase B	MAOA MAOB	E
Motilin	MLN	G
Msh homeobox homolog 2	MSX2	G
Mucin 18	MUC18	T
Mucin, MUC2	10000	Ť
Mucin, MUC5AC		Ť
Mucin, MUC6		Ť
Mucolipidoses	GNPTA	Ė
Mulibrey nanism	MUL	T
Muscarinic receptor, M1	CHRM1	N

Muscarinic receptor, M2	CHRM2	Ν
Muscarinic receptor, M3	CHRM3	N
Muscarinic receptor, M4	CHRM4	N
Muscarinic receptor, M5	CHRM5	N
Muscle phosphorylase	PYGM	E
Mutated in colorectal cancers, MCC	MCC	G
MutL homolog 1	MLH1	G
MutS homolog 2	MSH2	G
MutS homolog 3	MSH3	G
•	1013113	
Myoglobin	· MYO15	T
Myosin 15		S
Myosin 5A	MYO5A	S
Myosin 6	MYO6	\$ \$ \$ \$
Myosin 7A	MYO7A	S
Myosin, cardiac	MYH7	S
Myosin, light chain 2	MYL2	S
Myosin, light chain 3	MYL3	S
Myotubularin	MTM1	S
Na+, K+ ATPase, alpha	ATP1A1	G
Na+, K+ ATPase, beta 1	ATP1B1	G
Na+, K+ ATPase, beta 2	ATP1B2	G
Na+, K+ ATPase, beta 3	ATP1B3	G
Na+/H+ exchanger 1	NHE1	Τ
Na+/H+ exchanger 2	NHE2	T
Na+/H+ exchanger 3	NHE3	T
Na+/H+ exchanger 4	NHE4	Τ
Na+/H+ exchanger 5	NHE5	Ţ
Na+coupled glucose/galactose transporter		Т
N-acetylgalactosamine-6-sulfate sulfatase	GALNS	Ε
N-acetylglucosamine-6-sulfatase	GNS	E
N-acetylglucosaminidase, alpha	NAGLU	E
NADH dehydrogenase		Ē
NADH dehydrogenase (ubiquinone) Fe-S	NDUFS1	E
protein 1		
NADH dehydrogenase (ubiquinone) Fe-S	NDUFS4	Ε
protein 4		_
NADH dehydrogenase (ubiquinone)	NDUFV1	Ε
flavoprotein 1	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
NADH-cytochrome b5 reductase	DIA1	Ε
NADPH-dependent cytochrome P450	POR	E
reductase	1010	_
NB6		1
Nephrolithiasis 2	NPHL2	Ť
·	NPHP1	
Nephronophthisis 1		T
Nephronip 1	NPHP2	T
Nephrosis 1	NPHS1	T
Nerve growth factor	NGF	G
Nerve growth factor receptor	NGFR	G

Neuraminidase sialidase Neurofibromin 1 Neurofibromin 2 Neurokinin A Neurokinin B Neurotensin Neurotensin receptor Notch ligand - jagged 1 Nuclear factor I-kappa-B-like gene Oncogene ERB	NEU NF1 NF2 NKNA NKNB NTS NTSR1 JAG1, AGS IKBL	T G G Z Z Z Z G - G
Oncogene ERB2 Oncogene ERBA Oncogene ERBAL2 Oncogene GLI1	GLI	G G G
Oncogene GLI2	GLI2	G
Oncogene GLI3	GLI3	Ğ
Oncogene met	MET	G
Oncogene myb	MYB	G
Oncogene myc	MYC	G
Oncogene n-myc		G
Oncogene ret	RET	G
Oncogene r-myc		G
Oncogene sis	PDGFB	G
Oncogene spi1		G
Oncogene src	145.4.00	G
Oncogene v-Ki-ras2	KRAS2	G
Orexin	OX .	G
Orexin 1 receptor	OX1R	G
Orexin 2 receptor	OX2R	G
Ornithine transcarbamoylase	OTC, NME1	E
Osteopontin Paired box homeotic gene 2	OPN	G
Paired box homeotic gene 2	PAX2	G
Paired box homeotic gene 6	PAX3	G
Paired box homeotic gene 8	PAX6 PAX8	G
Palmitoyl-protein thioesterase	PPT	G T
Pancreatic amylase		E
Pancreatic colipase		T
Pancreatic lipase	PNLIP	Ė
Pancreatic lipase related protein 1	PLRP1	E
Pancreatic lipase related protein 2	PLRP2	Ē
Paraoxonase PON1	PON1	Ē
Paraoxonase PON2	PON2	Ē
Paraoxonase PON3		Ē
Parathyroid hormone	PTH	G
Parathyroid hormone receptor	PTHR1	G
Parathyroid hormone related-peptide	PTHrP	G
Parathyroid hormone-like hormone	PTHLH	G

Parvalbumin Patched (Drosophila) homolog, PTCH Pepsin Pepsinogen Peptidases A	PVALB PTCH	G G T E T
Peptidases B Peptidases C		T T
Peptidases D	PEPD	Ţ
Peptidases E Peptidases S		T T
Peroxidase, salivary	SAPX	Ė
Peroxisomal membrane protein 1	PXMP1	S
Peroxisomal membrane protein 3	PXMP3	Т
Peroxisome biogenesis factor 1	PEX1	T
Peroxisome biogenesis factor 19	PEX19	T
Peroxisome biogenesis factor 6	PEX6	T
Peroxisome biogenesis factor 7	PEX7	T
Peroxisome receptor 1	PXR1	Т
Phenylalanine monooxygenase	0751	E
Phosphatase & tensin homolog	PTEN	G
Phosphate regulating gene with homologies to	PHEX	G
endopeptidases on the X chromosome Phosphoenolpyruvate carboxykinase	PCK1	Ε
Phosphofructokinase, liver	PFKL	E
Phosphofructokinase, muscle	PFKM	E
Phosphoglucomutase	1 1 18141	E.
Phosphoglucose isomerase	GPI	E
Phosphoglycerate kinase 1	PGK1	E
Phosphoglycerate mutase 2	PGAM2	E
Phospholipase A2, group 10	PLA2G10	ī
Phospholipase A2, group 1B	PLA2G1B	1
Phospholipase A2, group 2A	PLA2G2A	1
Phospholipase A2, group 2B	PLA2G2B	İ
Phospholipase A2, group 4A	PLA2G4A	1
Phospholipase A2, group 4C	PLA2G4C	1
Phospholipase A2, group 5	PLA2G5	1
Phospholipase A2, group 6	PLA2G6	i
Phospholipase C alpha		ı
Phospholipase C beta		1
Phospholipase C delta	PLCD1	ı
Phospholipase C epsilon		!
Phospholipase C gamma	PLCG1	1
Phosphomannomutase 2	PMM2	G
Phosphomannomutase-2	PMM2	T
Phosphomannose isomerase-1, PMI1	MPI	T
Phosphoribosyl pyrophosphate synthetase	PRPS1	E
Phosphorylase kinase deficiency, liver	PHK	E
Phosphorylase kinase, alpha 1 (muscle)	PHKA1	

Phosphorylase kinase, alpha 2 Phosphorylase kinase, beta Phosphorylase kinase, delta Phosphorylase kinase, gamma 2 Plasminogen Plasminogen activator inhibitor 1 Plasminogen activator inhibitor 2 Plasminogen activator receptor, Urokinase Plasminogen activator, Tissue Plasminogen activator, Urokinase Platelet derived growth factor Platelet derived growth factor receptor Platelet monamine oxidase Platelet-activating factor receptor Polycystic kidney and hepatic disease 1 Polycystin 1 Polycystin 2 Polymorphonuclear elastase Potassium inwardly-rectifying channel J1 Potassium voltage-gated channel E1	PHKA2 PHKB PHKG2 PLG PAI1 PAI2 UPAR; PLAUR PLAT; TPA UPA; PLAU PDGF PDGFR PAFR PKHD1 PKD1 PKD2 KCNJ1 KCNJ11 KCNE1	田田田田田田の田田ののT-TTTNNN
Prekallikrein Preproenkephalin Preproglucagon Preproinsulin	PENK GCG;GLP1; GLP2	I N G T T
Procollagen N-protease	DDODU	E
Proline dehydrogenase	PRODH	E S S
Proline-rich protein BstNI subfamily 1	PRB1	S
Proline-rich protein BstNI subfamily 3	PRB3	S
Proline-rich protein BstNI subfamily 4	PRB4	E
Prolyl-4-hydroxylase	PMCH	G
Pro-melanin-concentrating hormone		_
Proopiomelanocortin	POMC PSAP	N N
Prosaposin	FSAF	1 1
Prostacyclin synthase Prostaglandin 15-OH dehydrogenase Prostaglandin D - DP receptor Prostaglandin E1 receptor Prostaglandin E2 receptor Prostaglandin E3 receptor Prostaglandin F - FP receptor Prostaglandin F2 alpha receptor Prostaglandin I2 receptor	HGPD; PGDH	
Prostaglandin IP receptor		
Protease inhibitor 1 Protective protein for beta-galactosidase Protein C	PPGB PROC	E I

Protein C inhibitor	PCI	1
Protein kinase B	PRKB	
Protein S	PROS1	F
Protein tyrosine phosphatase, non-receptor	PTPN12	G
type 12		
Prothrombin precursor	F2	1
Pterin-4-alpha-carbinolamine	PCBD	
Pyruvate carboxylase	PC	Ε
Pyruvate decarboxylase	PDHA	Ε
Pyruvate kinase	PKLR	Ε
Quinoid dihydropteridine reductase	QDPR	Ε
Renal glutaminase		Т
Renin	REN	Ε
Replication factor C	RFC2	E
Retinoblastoma 1	RB1	G
Retinol binding protein 1		Т
Retinol binding protein 2		T
Retinoschisis, X-linked, juvenile	RS	Ġ
RIGUI	RIGUI	G
SA homolog	SAH	G
Salivary amylase, AMY1		T
SAP (SLAM-associated protein)	SH2D1A	i
Secretin	SCT	Т
Secretin receptor, SCTR	SCTR	Т
Serotonin receptor, 5HT1A	HTR1A	Ν
Serotonin receptor, 5HT1B	HTR1B	Ν
Serotonin receptor, 5HT1C	HTR1C	Ν
Serotonin receptor, 5HT1D	HTR1D	Ν
Serotonin receptor, 5HT1E	HTR1E	Ν
Serotonin receptor, 5HT1F	HTR1F	Ν
Serotonin receptor, 5HT2A	HTR2A	Ν
Serotonin receptor, 5HT2B	HTR2B	Ν
Serotonin receptor, 5HT2C	HTR2C	Ν
Serotonin receptor, 5HT3	HTR3	Ν
Serotonin receptor, 5HT4	HTR4	Ν
Serotonin receptor, 5HT5	HTR5	Ν
Serotonin receptor, 5HT6	HTR6	Ν
Serotonin receptor, 5HT7	HTR7	Ν
Sodium channel, non-voltage gated 1, alpha	SCNN1A	Ν
Sodium channel, non-voltage gated 1, beta	SCNN1B	Ν
Sodium channel, non-voltage gated 1, gamma	SCNN1G	Ν
Sodium channel, voltage-gated, type 1, beta	SCN1B	Ν
polypeptide		
Solute carrier family 10 (sodium/bile acid	SLC10A1	T
cotransporter family),member 1		
Solute carrier family 10 (sodium/bile acid	SLC10A2	Т
cotransporter family),member 2		
Solute carrier family 12, member 1	SLC12A1	T

Solute carrier family 12, member 2	SLC12A2	~
		T
Solute carrier family 12, member 3	SLC12A3	T
Solute carrier family 14, member 2	SLC14A2	T
Solute carrier family 15 (H+/peptide	SLC15A1	Т
transporter, intestinal), member 1		
Solute carrier family 15 (H+/peptide	SLC15A2	Т
transporter, kidney), member 2		
Solute carrier family 16 (monocarboxylate	SLC16A1	Т
transporter), member 1		
Solute carrier family 16 (monocarboxylate	SLC16A7	Т
transporter), member 7		
Solute carrier family 17, member 1	SLC17A1	Т
Solute carrier family 17, member 2	SLC17A2	Ť
Solute carrier family 2 (facilitated glucose	SLC2A1	Ť
transporter), member 1		'
Solute carrier family 2 (facilitated glucose	SLC2A2	Т
transporter), member 2	SEOZAZ	1
Solute carrier family 2 (facilitated glucose	SLC2A3	_
· · · · · · · · · · · · · · · · · · ·	SLOZAS	T
transporter), member 3	S1 C2 A 4	_
Solute carrier family 2 (facilitated glucose	SLC2A4	T
transporter), member 4	01.004.5	_
Solute carrier family 2 (facilitated glucose	SLC2A5	Т
transporter), member 5	0.00445	
Solute carrier family 21, member 2	SLC21A2	Т
Solute carrier family 21, member 3	SLC21A3	T
Solute carrier family 22, member 1	SLC22A1	Т
Solute carrier family 22, member 2	SLC22A2	T
Solute carrier family 22, member 5	SLC22A5	T
Solute carrier family 3 (facilitated glucose	SLC3A1	T
transporter), member 1		
Solute carrier family 4 (anion exchanger),	SLC4A1	Т
member 1		
Solute carrier family 4 (anion exchanger),	SLC4A2	Τ
member 2		
Solute carrier family 4 (anion exchanger),	SLC4A3	Т
member 3		
Solute carrier family 5 (sodium/glucose	SLC5A1	Т
transporter), member 1	52 557	•
Solute carrier family 5 (sodium/glucose	SLC5A2	Т
transporter), member 2	0200712	'
Solute carrier family 5 (sodium/glucose	SLC5A5	Т
transporter), member 5	SECOAG	1
	SI CEA2	т
Solute carrier family 5, member 3	SLC5A3	T
Solute carrier family 6 (GAMMA-	SLC6A1	T
AMINOBUTYRIC ACID transporter), member 1	SI C643	
Solute carrier family 6 (neurotransmitter	SLC6A3	T
transporter, dopamine), member 3	0.0040	_
Solute carrier family 6 (neurotransmitter	SLC6A2	T

transporter, noradrenaline), member 2		
Solute carrier family 6, member 6	SLC6A6	Т
Solute carrier family 7(amino acid transporter),		Ť
member 1	020	•
Solute carrier family 7(amino acid transporter),	SLC7A2	Т
member 2		•
Solute carrier family 7(amino acid transporter),	SI C7A7	Т
member 7	010	٠
Somatostatin	SST	Ν
Somatostatin receptor, SSTR1	SSTR1	N
Somatostatin receptor, SSTR2	SSTR2	G
Somatostatin receptor, SSTR3	SSTR3	N
Somatostatin receptor, SSTR4	SSTR4	N
Somatostatin receptor, SSTR5	SSTR5	N
Sphingomyelinase	SMPD1	E
Steroid 5 alpha reductase 1	SRD5A1	E
Steroid 5 alpha reductase 2	SRD5A2	E
Sterol carrier protein 2	SCP2	T
Substance P		N
Succinyl CoA synthase		Е
Sucrase		Ε
Sucrase-isomaltase	SI	Т
Superoxide dismutase 1	SOD1	Ε
Surfeit 1	SURF1	G
Talin	TLN	G
Talin, TLN		S
TATA binding protein	TBP	G
T-BOX 1	TBX1	G
T-BOX 2	TBX2	G
T-BOX 3	TBX3	G
Thiolase, perioxisomal		Ε
Thrombin receptor	F2R	1
Thrombopoietin	THPO	G
Thromboxane A synthase 1	TBXAS1	1
Tip-associated protein	TAP	-
Topoisomerase I	TUOD	E
Torticollis, keloids, cryptorchidism and renal	TKCR	G
dysplasia gene		_
Transacylase		E
Transcobalamin 1, TCN1	TONG	T
Transcobalamin 2, TCN2	TCN2	T
Transcription factor 1, hepatic	TCF1	G
Transcription factor 2, hepatic	TCF2	G
Transferrin	TEDC	G
Transferring growth factor, bota 2	TERC	G
Transforming growth factor, beta 2	TGFB2	G
Transforming growth factor, beta induced	TGFBI	G G
Transforming growth factor, beta receptor 2	TGFBR2	G

Transglutaminase 4 Transketolase Transketolase-like 1 Translocation in renal carcinoma on	TGM4 TKT TKTL1 TRC8	G E E G
chromosome 8 gene Transthyretin Trehalase	TTR	, T
Triosephosphate isomerase Trypsin inhibitor	TPI1	T E E
Trypsinogen 1 Trypsinogen 2	TRY1 TRY2	E E
Trypsinogen activation peptide Tuberous sclerosis 1 Tuberous sclerosis 2	TSC1 TSC2	T G G
Tumour necrosis factor (TNF) receptor associated factor 1	TRAF1	ı
Tumour necrosis factor (TNF) receptor associated factor 2	TRAF2	1
Tumour necrosis factor (TNF) receptor associated factor 3	TRAF3	1
Tumour necrosis factor (TNF) receptor associated factor 4 Tumour necrosis factor (TNF) receptor	TRAF4 TRAF5	1
associated factor 5 Tumour necrosis factor (TNF) receptor	TRAF6	1
associated factor 6 Tumour necrosis factor alpha	TNFA	ļ
Tumour necrosis factor alpha receptor Tumour necrosis factor beta Tumour necrosis factor beta receptor	TNFAR TNFB TNFBR	! !
Tumour protein p53 Tumour protein p63	TP53, P53 TP63	G G
Tumour suppresssor gene DRA Tyrosinase	DRA TYR	I E
UDP-glucose pyrophosphorylase UDP-glucuronosyltransferase 1	ugt1d, UGT1	E E E
UDP-glucuronosyltransferase 2 Uridinediphosphate(UDP)-galactose-4- epimerase	UGT2 GALE	E E
Uroporphyrinogen decarboxylase Uroporphyrinogen III synthase	UROD UROS	E E
Vasoactive intestinal polypeptide Vasoactive intestinal polypeptide receptor Vasoinhibitory peptide	VIP VIPR	N N G
Villin Von Hippel-Lindau gene Von Willebrand factor Wiskott-Aldrich syndrome protein	VHL VWF WASP, THC	S G T I

Wolf-Hirschhorn syndrome candidate 1 gene Wolfram syndrome 1 gene Xanthine dehydrogenase	WHSC1 WFS1 XDH	GSE
Xeroderma pigmentosum, complementation group A	XPA	E
Xeroderma pigmentosum, complementation	XPB	E
group B Xeroderma pigmentosum, complementation	XPC	Ε
group C		_
Xeroderma pigmentosum, complementation group D		Ε
Xeroderma pigmentosum, complementation		E
group E Xeroderma pigmentosum, complementation	XPF	Ε
group F	70.1	_
Xeroderma pigmentosum, complementation	ERCC5	E
group G	7100	_
Zinc finger protein 3	ZIC3	S

- 281.A set of probes, said probes being antibodies or antibody fragments which interact with specific expressed proteins encoded by gene sequences of a group of genes, said probes being for detecting relevant variants (mutations and polymorphisms), e.g. nucleotide substitutions (missense, nonsense, splicing and regulatory), small deletions, small insertions, small insertion deletions, gross insertions, gross deletions, duplications, complex rearrangements and repeat variations in a target group of genes; characterised in that said group is a core group of genes consisting of substantially all of the genes defined in claim 280.
- 282.A set according to claim 280 or 281 in which a minority of said probes for listed genes are absent.
- 283.A set according to claim 280 or 281 in which a limited number of additional probes are present together with substantially all of the probes for the listed genes.
- 284.A set according to claim 280 or 281 in which a limited number of probes are replaced by probes for non-listed genes.
- 285.A set of probes for a core group of genes according to any of claims 280 to 284 in which each gene to be probed is substantially similar (greater than 85% homologous) in sequence to the respective member of the core list of genes.
- 286.A set according to any of claims 280 to 285 consisting of probes for members of a sub-group of the core group.
- 287.A set according to any preceding claim in which said probes are in the form of an array and are spatially arranged at known locations on a substrate.
- 288.A set according to any preceding claim wherein said probes are on a substrate which forms part of or consists of one or more chip plate(s), for use in a chip assay for detection of said gene variants.

- 289.A set according to any preceding claim in which said probes are mass, electrostatic or fluorescence tagged probes.
- 290.A set according to claim 287 or 288 in which said substrate is a semiconductor microchip.
- 291.A set according to any preceding claim for use in a biological assay for detection of said gene variants.
- 292. A set according to any preceding claim for use in the measurement of differential gene expression levels.
- 293. A medical device including a set according to any preceding claim for use in an assay for detection of said gene variants.
- 294.A medical device including a set according to any of claims 280 to 292 for use in an array for detection of differential gene expression levels.
- 295. A method for use in assessing the genomic profile of a patient or individual, the method comprising testing for and detecting the presence or absence of DNA or RNA encoding the relevant structural variants (as defined in claim 280) in a target group of genes by hybridising a nucleic acid-containing sample from said patient or individual to a set according to any of claims 280 and 282 to 292 and relating the probe hybridisation pattern to said variations.
- 296. A method for use in assessing the the genomic profile of a patient or individual, the method comprising testing for and detecting the presence or absence of DNA or RNA encoding the relevant structural variants (as defined in claim 281) in a target group of genes by interacting an expressed-protein-containing sample from said patient or individual with a set of probes according to any of claims 281 to 292 and relating the probe interaction pattern to said variations.
- 297. Use of a set or device according to any of claims 280 to 292 for the prognosis and management of patients suffering from or at risk of experiencing the symptoms and consequences of dysfunction, damage or disease of the gastrointestinal tract.
- 298. Use of a set or device according to any of claims 280 to 292 for predicting likely therapeutic response and adverse events following therapeutic intervention.
- 299. Use of a set or device according to any of claims 280 to 292 for predicting likely therapeutic response and adverse events following the intake of a specific drug.
- 300. Use of a set or device according to any of claims 280 to 292 for predicting likely patterns of symptom clusters (symptom profiles) in disease and the likelihood of subsequent, contingent, disease or symptoms.
- 301. Use of a set or device according to any of claims 280 to 292 for general health screening, occupational health purposes, healthcare planning on a population basis and other healthcare management utilisations.
- 302. Use of a set or device according to any of claims 280 to 292 for the development of new strategies of therapeutic intervention and in clinical trials.
- 303. Use of a set or device according to any of claims 280 to 292 for construction of and generation of algorithms for patient and healthcare management.
- 304. Use of a set or device according to any of claims 280 to 292 for modelling or assessing the impact of diseases or healthcare management strategies on individuals, groups, patient cohorts or populations.

- 305. Use of a set or device according to any of claims 280 to 292 for modelling, assessing or exploring the theoretical impact of diseases and healthcare management strategies on individuals, groups, patient cohorts or populations.
- 306. Use of a set or device according to any of claims 280 to 292 for predicting optimum configuration/management of thereapeutic intervention.
- 307.A method according to claim 295 or 296 in which the identification of gene variants is indicative of a higher risk of developing dysfunction, damage or disease of the gastrointestinal tract or of experiencing the symptoms and consequences of dysfunction, damage or disease of the gastrointestinal tract for the patient or individual.
- 308. A method for generating a model to assess whether a patient or individual or population or group is or are likely to develop symptoms and consequences of dysfunction, damage or disease of the gastrointestinal tract which method comprises:
- i) obtaining DNA or RNA or protein samples from patients or individuals diagnosed as suffering from symptoms and consequences of dysfunction, damage or disease of the gastrointestinal tract;
- ii) obtaining DNA or RNA or protein samples from a control group of subjects diagnosed as not suffering from the symptoms and consequences of dysfunction, damage or disease of the gastrointestinal tract;
- iii) analysing the samples obtained in i) and ii) to identify the polymorphic variations encoded in the core group of genes as defined in any of claims 280 to 286;
- iv) calculating the frequencies of these alleles in the samples from i) and ii);
- v) comparing the frequencies of these alleles in i) and ii);
- vi) performing a statistical analysis on the results from v) in order to generate a model for assessing the risk of developing symptoms and consequences of dysfunction, damage or disease of the gastrointestinal tract.
- 309. A method for assessing whether a given subject will be at risk of developing symptoms, which comprises comparing said subject's genotype with a model generated by the method of claim 308.
- 310. A method according to any of claims 295, 296, 308 and 309 wherein at least one step is computer-controlled.
- 311. An assay suitable for use in a method according to any of claims 295, 296, 308 and 309; said assay comprising means for determining the presence or absence of relevant polymorphic variants of the core group of genes as defined in any of claims 280 to 286 in a biological sample.
- 312. A formatted assay technique (kit) for use in assessing the risk of a patient or individual developing symptoms and consequences of dysfunction, damage or disease of the gastrointestinal tract; said kit comprising:
 - i) means for testing for the presence or absence or DNA or RNA encoding relevant polymorphic variants of the core group of genes as defined in claim 280 or 282 to 286 in a sample of human DNA;
 - ii) reagents for use in the detection process
 - iii) readout indicating the probability of a patient or individual developing symptoms and consequences of dysfunction, damage or disease of the gastrointestinal tract.

- 313. A formatted assay technique (kit) for use in assessing the risk of a patient or individual developing symptoms and consequences of dysfunction, damage or disease of the gastrointestinal tract; said kit comprising:
 - i) means for testing for the presence or absence of proteins encoded by the core group of genes and/or relevant polymorphic variants of the core group of genes as defined in any of claims 281 to 286 in an expressed-protein-containing human sample;
 - ii) reagents for use in the detection process
 - iii) readout indicating the probability of a patient or individual developing symptoms and consequences of dysfunction, damage or disease of the gastrointestinal tract.
- 314. A set of probes according to claim 280, wherein the probes are selected from the group consisting of oligonucleotides and polynucleotides.
- 315. A set of nucleotide probes for detecting relevant variants (mutations and polymorphisms), e.g. nucleotide substitutions (missense, nonsense, splicing and regulatory), small deletions, small insertions, small insertion deletions, gross insertions, gross deletions, duplications, complex rearrangements and repeat variations in a target group of genes which relate to dysfunction, damage or disease of the respiratory system; said probes being complementary to DNA and RNA sequences of said group of genes; characterised in that said group is a core group of genes consisting of substantially all of the following:

KEY TO 'PROTEIN FUNCTION' COLUMN

- E ENZYME
- T TRANSPORT & STORAGE
- S STRUCTURAL
- I IMMUNITY
- N NERVOUS TRANSMISSION
- G GROWTH & DIFFERENTIATION

RESPIRATORY GENE LIST	HUGO gene	Protein
	symbol	function
11beta hydroxysteroid dehydrogenase 2	HSD11B2	Ε
2,3-bisphosphoglycerate mutase	BPGM	E
3 beta hydroxysteroid dehydrogenase 2	HSD3B2	E
Acetoacetyl 1-CoA-thiolase	ACAT1	E
Acetoacetyl 2-CoA-thiolase	ACAT2	Ε
Acetyl CoA synthase		Ε
Acetylcholine receptor, nicotinic, gamma	CHRNG	N
Acetylcholinesterase	ACHE	E
Aconitase		E
Acyl CoA dehydrogenase, long chain	ACADL	Ε
Acyl CoA dehydrogenase, medium chain	ACADM	Ε
Acyl CoA dehydrogenase, short chain	ACADS	E .
Acyl CoA dehydrogenase, very long chain	ACADVL	E

Albumin, ALB Alcohol dehydrogenase 1 Alcohol dehydrogenase 2 Alcohol dehydrogenase 3 Alcohol dehydrogenase 3 Alcohol dehydrogenase 4 Alcohol dehydrogenase 5 Alcohol dehydrogenase 6 Alcohol dehydrogenase 6 Alcohol dehydrogenase 7 Aldohol dehydrogenase 7 Aldolase A Aldolase B Aldolase C Aldosterone receptor Alpha 2 macroglobulin Alpha1-antichymotrypsin Alpha1-antichymotrypsin Alpha2-antiplasmin Alpha2-antiplasmin Alpha-actinin 2 Alpha-actinin 3 Alpha-Galactosidase A Alpha-ketoglutarate dehydrogenase Aminopeptidase P Amphiregulin ADH1 ADH2 ADH3 ADH4 ADH6 ADH7 ADH7 ADH7 ADH6 ADH7 ALDOA ALDOA ALDOC ALDOC ALDOC ALDOC ACTN2 ACTN3	Adaptin, beta 3A Adenosine deaminase Adenosine receptor A1 Adenosine receptor A2A Adenosine receptor A2B Adenosine receptor A3 Adenylate cyclase 1 Adenylate cyclase 2 Adenylate cyclase 3 Adenylate cyclase 4 Adenylate cyclase 5 Adenylate cyclase 5 Adenylate cyclase 6 Adenylate cyclase 7 Adenylate cyclase 8 Adenylate cyclase 9 Adrenergic receptor, alpha1 Adrenergic receptor, beta1 Adrenergic receptor, beta2 Adrenergic receptor, beta3 Adrenocorticotrophic hormone (ACTH) receptor	ADTB3A ADA ADORA1 ADORA2A ADORA2B ADORA3 ADCY1 ADCY2 ADCY3 ADCY4 ADCY5 ADCY5 ADCY6 ADCY7 ADCY8 ADCY7 ADCY8 ADCY9 ADRA1 ADRA2 ADRA2 ADRB1 ADRB2 ADRB3 ACTHR	+ 12 2 2 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Alcohol dehydrogenase 6 Alcohol dehydrogenase 7 Aldolase A Aldolase B Aldolase C Aldosterone receptor Alpha 2 macroglobulin Alpha1-antichymotrypsin Alpha2-antiplasmin Alpha2-antiplasmin Alpha-actinin 2 Alpha-actinin 3 Alpha-actinin 3 Alpha-Galactosidase A Alpha-ketoglutarate dehydrogenase Aminopeptidase P Amphiregulin ADH7 ALDOA ALDOC	Albumin, ALB Alcohol dehydrogenase 1 Alcohol dehydrogenase 2 Alcohol dehydrogenase 3 Alcohol dehydrogenase 4	ADH1 ADH2 ADH3 ADH4	T E E E E
Alpha 2 macroglobulin Alpha1-antichymotrypsin Alpha1-antitrypsin Alpha2-antiplasmin Alpha-actinin 2 ACTN2 ACTN2 ACTN2 ACTN3 AC	Alcohol dehydrogenase 6 Alcohol dehydrogenase 7 Aldolase A Aldolase B Aldolase C	ADH7 ALDOA ALDOB ALDOC	E E E E
alpha-actinin 3 ACTN3 GLA alpha-Galactosidase A GLA alpha-ketoglutarate dehydrogenase Aminopeptidase P XPNPEP2 Amphiregulin AREG	Alpha 2 macroglobulin Alpha1-antichymotrypsin alpha1-antitrypsin alpha2-antiplasmin	A2M AACT PI PLI	G - E E E G
Amphiregulin AREG	alpha-actinin 3 alpha-Galactosidase A alpha-ketoglutarate dehydrogenase	ACTN3 GLA	GEEE
Angiopoietin 1 ANGPT1 ANGPT2 ANGPT2	Amphiregulin Androgen receptor Angiopoietin 1 Angiopoietin 2	AREG AR ANGPT1 ANGPT2	G G G E

Angiotensin receptor 1	AGTR1	Т
Angiotensin receptor 2	AGTR2	Т
Angiotensinogen	AGT	Ε
Annexin 1	ANX 1	1
Antidiuretic hormone receptor	ADHR	Т
Antithrombin III	AT3	E
Apolipoprotein E	APOE	T
Arginase	ARG1	Ε
Arginine vasopressin	AVP	Ν
Arginine vasopressin receptor 1A	AVPR1A	Ν
Arginine vasopressin receptor 1B	AVPR1B	N
Arginine vasopressin receptor 2	AVPR2	Ν
Arginosuccinate lyase	ASL	E
Arylsulfatase D	ARSD	Ε
Arylsulfatase E	ARSE	Ε
Arylsulfatase F	ARSF	Ε
Aspartate transaminase		Т
Ataxia telangiectasia gene, AT	ATM	G
ATP/ADP translocase		Ε
Atrial natriuretic peptide	ANP	G
Atrial natriuretic peptide receptor A	NPR1	G
Atrial natriuretic peptide receptor B	NPR2	G
Atrial natriuretic peptide receptor C	NPR3	G
beta-galactosidase	GLB1	Ε
beta-Glucuronidase	GUSB	Ε
Biotinidase	BTD	Ε
Bloom syndrome protein	BLM	G
Bradykinin receptor B1		1
Bradykinin receptor B2		i
Butyrylcholinesterase	BCHE	Ε
C1 inhibitor		Ε
Cadherin E	CDH1	G
Cadherin EP		G
Cadherin N	CDH2	G
Cadherin P	CDH3	G
Calcitonin receptor /Calcitonin gene-related	CALCR	Ν
peptide receptor		
Calcitonin/Calcitonin gene-related peptide	CALCA	Ν
alpha		
Calcium channel, voltage-dependent, alpha	CACNA1F	Ν
1F subunit		
Calcium channel, voltage-dependent, Alpha-	CACNA1B	Ν
1B (CACNL1A5)		
Calcium channel, voltage-dependent, Alpha-	CACNA1C	Ν
1C		
Calcium channel, voltage-dependent, Alpha-	CACNA1D	Ν
1D		
Calcium channel, voltage-dependent, Alpha-	CACNA1E	Ν

1E (CACNL1A6)		
Calcium channel, voltage-dependent, Alpha-	CACNA2	Ν
2/delta	S. (S <u>_</u>	••
Calcium channel, voltage-dependent, Beta 1	CACNB1	Ν
Calcium channel, voltage-dependent, Beta 3	CACNB3	N
Calcium channel, voltage-dependent,	CACNG2	N
- · · ·	GAGINGE	14
Neuronal, Gamma		N.I.
Calcium channel, voltage-dependent, T-type	CALAM	N
Calmodulin 1	CALM1	G
Calmodulin 2	CALM2	G
Calmodulin 3	CALM3	G
Calnexin	CANX	G
Carbonic anhydrase 3	CA3	E
Carbonic anhydrase 4	CA4	E
Carbonic anhydrase, alpha	CA1	Ε
Carbonic anhydrase, beta	CA2	E
Carnitine acetyltransferase	CRAT	Ε
Carnitine acylcarnitine translocase	CACT	Ε
Catalase	CAT	-
Cathepsin B		Ε
Cathepsin D		Ε
Cathepsin E	•	Ε
Cathepsin G	CTSG	Ε
Cathepsin H		Ε
Cathepsin K	CTSK	Ε
Cathepsin L		Ε
Cathepsin S		Ε
CD1	CD1	1
CD4	CD4	-
Cell adhesion molecule, intercellular, ICAM	ICAM1	G
Cell adhesion molecule, leukocyte-	LECAM1	G
endothelial, LECAM (CD62)		
Cell adhesion molecule, liver, LCAM	LCAM	G
Cell adhesion molecule, neural, NCAM1	NCAM1	G
Cell adhesion molecule, neural, NCAM120	NCAM120	G
Cell adhesion molecule, neural, NCAM2	NCAM2	G
Cell adhesion molecule, platelet-endothelial,	PECAM1	G
PECAM		
Cell adhesion molecule, vascular, VCAM	VCAM1	G
Chemokine receptor CXCR4	CXCR4	1
Chitotriosidase	chit	Ε
Cholecystokinin	CCK	Ν
Cholecystokinin B receptor	CCKBR	N
Choline acetyltransferase	CHAT	Ε
Citrate synthase		F
Coenzyme Q (CoQ)/ubiquinone		E E S
Collagen I alpha 1	COL1A1	S
Collagen I alpha 2	COL1A2	S
Collagett i alpita z	00tm2	J

Collagen II alpha 1 Collagen IV alpha 1 Collagen IV alpha 2 Collagen IV alpha 3 Collagen IV alpha 4 Collagen IV alpha 5 Collagen IV alpha 5 Collagen IV alpha 6 Collagen IX alpha 2 Collagen IX alpha 2 Collagen IX alpha 3 Collagen IX alpha 3 Collagen V alpha 1 Collagen V alpha 1 Collagen V alpha 1 Collagen VI alpha 2 Collagen VI alpha 3 Collagen VI alpha 3 Collagen VI alpha 1 Collagen X alpha 1 Collagen X alpha 1 Collagen X alpha 1 Collagen X alpha 1 Collagen X alpha 1 Collagen XI alpha 2 Collagen XVII alpha 1 Colony-stimulating factor 1 Colony-stimulating factor 2 Colony-stimulating factor 2 Colony-stimulating factor 2 Colony-stimulating factor 3 Colony-stimulating factor 3 Colony-stimulating factor 3 Colony-stimulating factor 3 Colony-stimulating factor 3 Colony-stimulating factor 1 Complement component C1 inhibitor Complement component C1qa Complement component C1qa Complement component C1qa Complement component C1c Complement component C3 Complement component C4A Complement component C4A Complement component C5 Complement component C6 Complement component C6 Complement component C7 Complement component C8 Complement component C9 Complement C9 Complement C9 Complement C9 Complement C9 Complement C9 Complement C9 Complement C9 Complem	COL2A1 COL3A1 COL4A2 COL4A3 COL4A4 COL4A5 COL4A6 COL9A2, EDM2 COL9A3 COLF COL5A1 COL5A2 COL6A1 COL6A2 COL6A3 COL7A1 COL11A1 COL11A1 COL11A2 COL17A1 CSF1 CSF1R CSF2 CSF2RA CSF2RB CSF3R C1NH C1QA C1QB C1QG C1R C1QG C1QG C1R C1QG C1QG C1R C1QG C1QG C1R C1QG C1QG C1QG C1QG C1QG C1QG C1QG C1QG	\$
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Complex III		Ε
Complex III		Ε
Complex V	MTATP6	Ε
Coproporphyrinogen oxidase	CPO	Ε
Corticotrophin-releasing hormone	CRH	T
Corticotrophin-releasing hormone receptor	CRHR1	Т
Cortisol receptor		i
C-reactive protein CRP		i
Creatine kinase – B and m	CKBE	Ė
Creb binding protein	CREBBP	Ğ
	ATP7A	E
Cyclic AMP-dependent protein kinase	PKA	E
Cyclic nucleotide phosphodiesterase 1B	PDE1B	E
Cyclic nucleotide phosphodiesterase 1B1	PDE1B1	E
Cyclic nucleotide phosphodiesterase 2A3	PDE2A3	E
Cyclic nucleotide phosphodiesterase 2A3	PDE3A	E
Cyclic nucleotide phosphodiesterase 3B	PDE3B	E
	PDE3B	E
Cyclic nucleotide phosphodiesterase 4A	PDE4C	E
Cyclic nucleotide phosphodiesterase 4C	PDE5A	E
Cyclic nucleotide phosphodiesterase 5A	PDE6A	Ε
Cyclic nucleotide phosphodiesterase 6A		E
Cyclic nucleotide phosphodiesterase 6B	PDE6B	E
Cyclic nucleotide phosphodiesterase 7	PDE7	
Cyclic nucleotide phosphodiesterase 8	PDE8	E
Cyclic nucleotide phosphodiesterase 9A	PDE9A	E
Cyclin-dependent kinase 2	CDK2	G
Cyclin-dependent kinase inhibitor 2A (p16)	CDKN2A	G
Cyclooxygenase 1	COX1	E
Cyclooxygenase 2	COX2	E
CYP11A1	CYP11A1	E
CYP11B1	CYP11B1	E
CYP11B2	CYP11B2	
CYP17	CYP17	E
CYP19	CYP19	Ε
CYP1A1	CYP1A1	Ε
CYP1A2	CYP1A2	E
CYP1B1	CYP1B1	E
CYP21	CYP21	Ē
CYP24	CYP24	E
CYP27	CYP27	E
CYP27B1	PDDR	E
CYP2A1	CYP2A1	Ε
CYP2A13	CYP2A13	Ε
CYP2A3	CYP2A3	Ε
CYP2A6V2	CYP2A6V2	Ε
CYP2A7	CYP2A7	Ε
CYP2B6	CYP2B6	Ε
CYP2C18	CYP2C18	Ε

0.700040	CYP2C19	_
01. 20.0	CYP2C8	E
0 200	CYP2C9	E
3.1. 2.0	CYP2D6	E
• ===		
···	CYP2E1	E
CYP2F1	CYP2F1	E
CYP2J2	CYP2J2	Ε
CYP3A3	CYP3A3	E
CYP3A4	CYP3A4	E
CYP3A5	CYP3A5	E
CYP3A7	CYP3A7	E
CYP4A11	CYP4A11	Ε
CYP4B1	CYP4B1	Ε
CYP4F2	CYP4F2	Ε
CYP4F3	CYP4F3	Ε
CYP51	CYP51	Ε
CYP5A1	CYP5A1	Ε
CYP7A	CYP7A	Ε
CYP8	CYP8	Ε
Cystathionase	CTH	Ε
Cystathione beta synthase	CBS	Ε
Cystic fibrosis transmembrane conductance	CFTR	N
regulator, CFTR		
Cytidine deaminase	CDA	Ε
Cytidine-5-prime-triphosphate synthetase	CTPS	Ε
Cytochrome a		Ε
Cytochrome b-245 alpha	CYBA	Ε
Cytochrome b-245 beta	CYBB	EEE
Cytochrome b-5	CYB5	E
Cytochrome c		Ε
Cytochrome c oxidase, MTCO		Ε
Cytokine-suppressive antiinflammatory drug-	CSBP1	1
binding protein 1		
Cytokine-suppressive antiinflammatory drug-	CSBP2	l
binding protein 2		
DAX1 nuclear receptor	DAX1	-
D-beta-hydroxybutyrate dehydrogenase		Ε
Delta 4-5 alpha-reductase		Ε
Desmin	DES	S
Dihydrolipoamide dehydrogenase	DLD	Ν
DNA glycosylases		Ε
Dopamine beta hydroxylase	DBH	Ε
Dopamine receptors D1	DRD1	Ν
Dopamine receptors D2	DRD2	Ν
Dopamine receptors D3	DRD3	Ν
Dopamine receptors D4	DRD4	Ν
Dopamine receptors D5	DRD5	Ν
Dystrophin	DMD	S

Elastase 1 Elastase 2 Elastin Electron-transfering-flavoprotein alpha Electron-transfering-flavoprotein beta Electron-transferring flavoprotein dehydrogenase	ELAS1 ELAS2 ELN ETFA ETFB ETFDH	EESTTE
Endothelin 1	EDN1	N
Endothelin 2	EDN2	N
Endothelin 3	EDN3 ECE1	N
Endothelin converting enzyme Endothelin receptor type A	EDNRA	N
Endothelin receptor type B	EDNRB	N
Enolase	ENO1	E
Enoyl CoA hydratase	2	E
Enoyl CoA isomerase		E
Enoyl CoA reductase		Ε
Enterokinase	PRSS7, ENTK	Ε
Ephrin receptor tyrosine kinase A	EPHA	G
Ephrin receptor tyrosine kinase B	EPHB	G
Epidermal growth factor	EGF	G
Epidermal growth factor receptor	EGFR	G
Epoxide hydrolase 1, microsomal	EPHX1	E
Estrogen receptor	ESR	G
EWS RNA-binding protein	EWSR1	G
Eyes absent 1	EYA1 FGD1, FGDY	G T
Faciogenital dysplasia Factor 1 (No. one)	F3D1, 1 GD1	ì
Factor B, properdin	1 1	i
Factor D		i
Factor H	HF1	i
Factor I (letter I)	IF	1
Factor III	F3	1
Factor IX	F9	1
Factor V	F5	- 1
Factor VII	F7	1
Factor VIII	F8	1
Factor X	F10	1
Factor XI	F11	!
Factor XII	F12	- !
Factor XIII A & B	F13A & F13B	1
Fc fragment of IgG, high affinity IA, receptor	FCGR1A	G
for Engrapher of Inc. low affinity II a recentor	FCGR2A	G
Fc fragment of IgG, low affinity IIa, receptor for (CD32)	I UGINZA	J
Fo fragment of IgG, low affinity Illa, receptor	FCGR3A	G
for (CD16)		_
Fibrillin 1	FBN1	G

Fibring and alpha	COA	_
Fibrinogen alpha	FGA	S
Fibrinogen beta	FGB	S
Fibrinogen gamma	FGG	S
Fibroblast growth factor	FGF1	G
Fibroblast growth factor receptor 1	FGFR1	G
Fibroblast growth factor receptor 2	FGFR2	G
Fibroblast growth factor receptor 3	FGFR3	G
Fibronectin precursor	FN1	Ğ
Flightless-II, Drosophila homolog of	FLII	Ğ
Follicle stimulating hormone receptor	FSHR, ODG1	G
Follicle stimulating hormone, FSH	FSHB	G
Forkhead rhabdomyosarcoma gene	FKHR	G
Fructose-1,6-diphosphatase	FBP1	E
Furin	rbr i	
	CARRAA	T
GABA receptor, alpha 1	GABRA1	N
GABA receptor, alpha 2	GABRA2	Ν
GABA receptor, alpha 3	GABRA3	Ν
GABA receptor, alpha 4	GABRA4	Ν
GABA receptor, alpha 5	GABRA5	Ν
GABA receptor, alpha 6	GABRA6	Ν
GABA receptor, beta 1	GABRB1	Ν
GABA receptor, beta 2	GABRB2	Ν
GABA receptor, beta 3	GABRB3	Ν
GABA receptor, gamma 1	GABRG1	Ν
GABA receptor, gamma 2	GABRG2	Ν
GABA receptor, gamma 3	GABRG3	Ν
GABA transaminase	ABAT	Ε
Galactocerebrosidase	GALC	Ε
Galactosyltransferase 1	GT1	G
Galactosyltransferase, alpha 1,3	GGTA1	G
Galactosyltransferase, beta 3	B3GALT	G
Glucocorticoid receptor	GRL	Ğ
Glucokinase	GCK	Ē
Glucosidase, acid alpha	GAA	Ē
Glutamate dehydrogenase	GLUD1	Ē
Glutamate receptor 1	GLUR1	N
Glutamate receptor 2	GLUR2	N
Glutamate receptor 3	GLUR3	N
Glutamate receptor 4	GLUR4	N
Glutamate receptor 5	GLUR5	N
Glutamate receptor 6	GLUR6	
-		N
Glutamate receptor 7	GLUR7	N
Glutamate receptor, ionotropic, NMDA 1	NMDAR1	N
Glutamate receptor, ionotropic, NMDA 2A	NMDAR2A	N
Glutamate receptor, ionotropic, NMDA 2B	NMDAR2B	N
Glutamate receptor, ionotropic, NMDA 2C	NMDAR2C	N
Glutamate receptor, ionotropic, NMDA 2D	NMDAR2D	N
Glutathione	GSH	Т

Glutathione peroxidase, GPX1 Glutathione peroxidase, GPX2 Glutathione reductase, GSR Glutathione S-transferase mu 1, GSTM1 Glutathione S-transferase mu 4, GSTM4 Glutathione S-transferase theta 1, GSTT1	GPX1 GPX2 GSR GSTM1	
Glutathione S-transferase theta 2, GSTT2		E
Glutathione S-transferase, GSTP1	GSTP1	E
Glutathione S-transferase, GSTZ1 Glutathione synthetase	GSTZ1 GSS	E
Glyceraldehyde-3-phosphate	GAPDH	E
dehydrogenase, GAPDH	GAFDH	
Glycerol kinase	GK	Ε
Glycinamide ribonucleotide (GAR)	GART	E
transformylase	OAICI	_
GM2 ganglioside activator protein, GM2A	GM2A	E
Growth arrest-specific homeobox	GAX	G
Guanylyl cyclase		E
Haemoglobin alpha 1	HBA1	T
Haemoglobin alpha 2	HBA2	T
Haemoglobin beta	HBB	Ţ
Haemoglobin delta	HBD	T
Haemoglobin gamma A	HBG1	T
Haemoglobin gamma B	HBG2	Т
Haemoglobin gamma G	HBGG	T
Heat shock protein, HSP60		l
Heat shock protein, HSP70		I
Heat shock protein, HSP90		1
Heat shock protein, HSPA1		l
Heat shock protein, HSPA2	LIBEOF	
Heparin binding epidermal growth factor	HBEGF	G
Heparin Cofactor II	HCF2	1
Hermansky-pudlak syndrome gene Hexokinase 1	HPS HK1	T
Hexokinase 2	HK2	Ε
Hexosaminidase A	HEXA,TSD	E
Histamine receptors, H1	TIEXA,130	N
Histamine receptors, H2		N
Histamine receptors, H3		N
HMG-CoA lyase	HMGCL	E
HMG-CoA reductase	HMGCR	E
HMG-CoA synthase	HMGCS2	E
Holocarboxylase synthetase	HLCS	Ε
Hyaluronidase		Т
Hypoxia inducible factor 1	HIF1A	Ε
Hypoxia inducible factor 2		Ε
Immunoglobulin E (IgE) reponsiveness gene	IGER	1
Immunoglobulin E (IgE) serum concentration	IGES	i

regulator gene	ICHC2	
Immunoglobulin gamma (IgG) 2	IGHG2	1
Insulin	INS	G
Insulin receptor	INSR	G
Insulin-like growth factor 1	IGF1	G
Insulin-like growth factor 1 receptor	IGF1R	G
Insulin-like growth factor 2	IGF2	G
Insulin-like growth factor 2 receptor	IGF2R	G
Integrin beta 1	ITGB1	G
Integrin beta 2	ITGB2	G
Integrin beta 5	ITGB5	G
Integrin beta 6	ITGB6	G
Integrin, alpha M	ITGAM	G
Inter-alpha-trypsin inhibitor, IATI		Е
Interferon alpha	IFNA1	1
Interferon beta	IFNB	1
Interferon gamma	IFNG	1
Interferon gamma receptor 1	IFNGR1	1
Interferon gamma receptor 2	IFNGR2	1
Interferon regulatory factor 1	IRF1	I
Interferon regulatory factor 4	IRF4	1
Interleukin(IL) 1 receptor	IL1R	1
Interleukin(IL) 1, alpha	IL1A	I
Interleukin(IL) 1, beta	IL1B	I
Interleukin(IL) 10	IL10	1
Interleukin(IL) 10 receptor	IL10R	1
Interleukin(IL) 11	IL11	1
Interleukin(IL) 11 receptor	IL11R	1
Interleukin(IL) 12	IL12	1
Interleukin(IL) 12 receptor, beta 1	IL12RB1	1
Interleukin(IL) 13	IL13	I
Interleukin(IL) 13 receptor	IL13R	1
Interleukin(IL) 2	IL2	1
Interleukin(IL) 2 receptor, alpha	IL2RA	1
Interleukin(IL) 2 receptor, gamma	IL2RG	1
Interleukin(IL) 3	IL3	1
Interleukin(IL) 3 receptor	IL3R	1
Interleukin(IL) 4	IL4	
Interleukin(IL) 4 receptor	IL4R	i
Interleukin(IL) 5	IL5	i
Interleukin(IL) 5 receptor	IL5R	1
Interleukin(IL) 6	IL6	i
Interleukin(IL) 6 receptor	IL6R	i
Interleukin(IL) 7	IL7	i
Interleukin(IL) 7 receptor	IL7R	1
Interleukin(IL) 8	IL8	1
Interleukin(IL) 8 receptor	IL8R	i
Interleukin(IL) 9	IL9	1
interiounin(it) 5	120	į

Interleukin(IL) 9 receptor Interleukin(IL) receptor antagonist 1 Isocitrate dehydrogenase Kallikrein 3 Kininogen, High molecular weight Kynureninease Laminin 5, alpha 3 Laminin 5, beta 3 Laminin 5, gamma 2 Laminin M Laminin receptor 1 Latent transforming growth factor-beta binding protein 2	IL9R IL1RN, IL1RA KAK3 KNG LAMA3 LAMB3 LAMC2 LAMM LAMR1 LTBP2	EEGGGGGG
Lecithin-cholesterol acyltransferase Leptin Leptin receptor	LCAT LEP LEPR	E G G
Leukotriene A4 hydrolase Leukotriene A4 synthase Leukotriene B4 receptor	LTA4S	E
Leukotriene B4 synthase Leukotriene C4 receptor	LTB4S	E 1
Leukotriene C4 synthase Leukotriene D4/E4 receptor	LTC4S	E
LIM homeobox protein 1 Lipoamide dehydrogenase Lipoprotein lipase Lipoprotein receptor, Low Density Lipoprotein, High Density Lipoprotein, Intermediate Density	LHX1 OGDH LPL LDLR HDLDT1	G E I T T
Lipoprotein, Low Density 1 Lipoprotein, Low Density 2 Lipoprotein, Very Low Density Lipoxygenase	VLDLR	T T T E
Low density lipoprotein receptor-related protein precursor	LRP	T
Lymphoid enhancer-binding factor Lysosomal acid lipase Lysozyme MAD (mothers against decapentaplegic,	LEF-1 LIPA LYZ MADH4	G E I G
Drosophila) homologue 4 Malate dehydrogenase, mitochondrial Malonyl CoA transferase	MDH2	E E
Mannose binding protein Mannosidase, alpha B lysosomal Mannosidase, beta A lysosomal Matrix Gla protein Matrix metalloproteinase 1	MBP MANB MANBA MGP MMP1	I E E G E E
Matrix metalloproteinase 10	MMP10	ᆫ

Matrix metalloproteinase 12 Matrix metalloproteinase 13 Matrix metalloproteinase 14 Matrix metalloproteinase 15 Matrix metalloproteinase 16 Matrix metalloproteinase 17 Matrix metalloproteinase 17 Matrix metalloproteinase 18 Matrix metalloproteinase 19 Matrix metalloproteinase 2 Matrix metalloproteinase 2 Matrix metalloproteinase 3 Matrix metalloproteinase 4 Matrix metalloproteinase 5 Matrix metalloproteinase 6 Matrix metalloproteinase 7 Matrix metalloproteinase 8 Matrix metalloproteinase 9 Methionine adenosyltransferase Midline 1 Mitochondrial trifunctional protein, alpha	MMP11 MMP12 MMP13 MMP14 MMP15 MMP16 MMP17 MMP18 MMP19 MMP2 MMP2 MMP3, STMY1 MMP4 MMP5 MMP6 MMP7 MMP8 MMP9 MAT1A, MAT2A MID1 HADHA	EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
subunit Mitochondrial trifunctional protein, beta	HADHB	Ε
subunit Monoamine oxidase A Monoamine oxidase B Muscarinic receptor, M1 Muscarinic receptor, M2 Muscarinic receptor, M3 Muscarinic receptor, M4 Muscarinic receptor, M5 Myoglobin Myotubularin Na+, K+ ATPase, alpha Na+, K+ ATPase, beta 1 Na+, K+ ATPase, beta 2 Na+, K+ ATPase, beta 3 NADH dehydrogenase NADH dehydrogenase (ubiquinone) Fe-S protein 1	MAOA MAOB CHRM1 CHRM2 CHRM3 CHRM4 CHRM5 MTM1 ATP1A1 ATP1B1 ATP1B2 ATP1B3 NDUFS1	EEZZZZZHØGGGEE L
NADH dehydrogenase (ubiquinone) Fe-S protein 4	NDUFS4	E
NADH dehydrogenase (ubiquinone) flavoprotein 1	NDUFV1	E
NADH-cytochrome b5 reductase NADPH-dependent cytochrome P450 reductase	DIA1 POR	E
Nebulin Nephrosis 1	NEB NPHS1	S T

	NOF	_
Nerve growth factor	NGF	G
Nerve growth factor receptor	NGFR	G
Neuraminidase sialidase	NEU	Т
Neuregulin	HGL	G
Neurofibromin 1	NF1	G
Neurofibromin 2	NF2	G
Neurokinin A	NKNA	N
Neurokinin B	NKNB	N
Neuropeptide Y	NPY	N
Neuropeptide Y receptor Y1	NPY1R	N
Neuropeptide Y receptor Y2	NPY2R	N
· · · · · · · · · · · · · · · · · · ·	NOS1	
Nitric oxide synthase 1, NOS1		Ε
Nitric oxide synthase 2, NOS2	NOS2	E
Nitric oxide synthase 3, NOS3	NOS3	E
Notch ligand - jagged 1	JAG1, AGS	G
Nucleoside diphosphate kinase-A	NDPKA	E
Oncogene ELK1	ELK1	G
Oncogene ELK2	ELK2	G
Oncogene sis	PDGFB	G
Ornithine delta-aminotransferase	OAT	Ε
Paired box homeotic gene 6	PAX6	G
Parathyroid hormone	PTH	G
Parathyroid hormone receptor	PTHR1	G
Parathyroid hormone related-peptide	PTHrP	G
Parathyroid hormone-like hormone	PTHLH	Ğ
Patched (Drosophila) homolog, PTCH	PTCH	Ğ
Peroxisomal membrane protein 3	PXMP3	T
Peroxisome biogenesis factor 1	PEX1	Ť
Peroxisome biogenesis factor 19	PEX19	Ť
Peroxisome biogenesis factor 6	PEX6	Ť
Peroxisome biogenesis factor 7	PEX7	Ť
Peroxisome receptor 1	PXR1	Ť
•	PAH	Ė
Phenylalanine hydroxylase	FAIT	
Phenylalanine monooxygenase	DNIAT	E
Phenylethanolamine N-methyltransferase,	PNMT	
PNMT	DEIX	_
Phosphofructokinase, liver	PFKL	E
Phosphofructokinase, muscle	PFKM	E
Phosphoglucomutase		E
Phosphoglucose isomerase	GPI	Ε
Phosphoglycerate kinase 1	PGK1	Ε
Phosphoglycerate mutase 2	PGAM2	Ε
Phospholipase A2, group 10	PLA2G10	I
Phospholipase A2, group 1B	PLA2G1B	I
Phospholipase A2, group 2A	PLA2G2A	i
Phospholipase A2, group 2B	PLA2G2B	1
Phospholipase A2, group 4A	PLA2G4A	ŀ
Phospholipase A2, group 4C	PLA2G4C	1

Phospholipase A2, group 5 Phospholipase A2, group 6 Phospholipase C epsilon Pineolytic beta-receptors Plasminogen Plasminogen activator inhibitor 1 Plasminogen activator inhibitor 2 Plasminogen activator receptor, Urokinase Plasminogen activator, Tissue Plasminogen activator, Urokinase Plasminogen activator, Urokinase Platelet derived growth factor Platelet derived growth factor receptor Platelet-activating factor receptor Potassium inwardly-rectifying channel J1 Potassium voltage-gated channel E1 Prekallikrein Procollagen N-protease	PLA2G5 PLA2G6 PLG PAI1 PAI2 UPAR; PLAUR PLAT; TPA UPA; PLAU PDGF PDGFR PAFR KCNJ1 KCNE1	шшшшмшш0
Progesterone receptor (RU486 binding	PGR	G
receptor) Proliferin Proopiomelanocortin Properdin P factor, complement Prosaposin Prostacyclin synthase Prostaglandin 15-OH dehydrogenase Prostaglandin D - DP receptor Prostaglandin E1 receptor Prostaglandin E2 receptor Prostaglandin E3 receptor Prostaglandin F - FP receptor Prostaglandin F2 alpha receptor Prostaglandin I2 receptor Prostaglandin IP receptor Prostaglandin IP receptor	PLF POMC PFC, PFD PSAP HGPD; PGDH	G N - N
Protein C inhibitor Protein phosphatase 2, regulatory subunit A,	PCI PPP2R1B	I E
beta isoform Protein S Prothrombin precursor Pyruvate carboxylase Pyruvate decarboxylase Pyruvate kinase Quinoid dihydropteridine reductase Renin Replication factor C Retinoblastoma 1 RIGUI Salivary amylase, AMY1	PROS1 F2 PC PDHA PKLR QDPR REN RFC2 RB1 RIGUI	

Onlandin E	CELE	
Selectin E	SELE SELL	N
Selectin L	SELP	N
Selectin P Serine hydroxymethyltransferase	SHMT	N E
	HTR1A	N
Serotonin receptor, 5HT1A	HTR1B	
Serotonin receptor, 5HT1B	HTR1C	N
Serotonin receptor, 5HT1C	HTR1D	N
Serotonin receptor, 5HT1D		N
Serotonin receptor, 5HT1E	HTR1E HTR1F	N
Serotonin receptor, 5HT1F		N
Serotonin receptor, 5HT2A	HTR2A	N
Serotonin receptor, 5HT2B	HTR2B	N
Serotonin receptor, 5HT2C	HTR2C	N
Serotonin receptor, 5HT3	HTR3	N
Serotonin receptor, 5HT4	HTR4	N
Serotonin receptor, 5HT5	HTR5	N
Serotonin receptor, 5HT6	HTR6	N
Serotonin receptor, 5HT7	HTR7	N
Sodium channel, non-voltage gated 1, alpha	SCNN1A	N
Sodium channel, non-voltage gated 1, beta	SCNN1B	N
Sodium channel, non-voltage gated 1,	SCNN1G	N
gamma	CONIAA	N.I.
Sodium channel, voltage gated, type IV,	SCN4A	Ν
alpha polypeptide	CON4Ď	N
Sodium channel, voltage-gated, type 1, beta	SCN1B	14
polypeptide	SLC21A2	Т
Solute carrier family 21, member 2	SLC21A2 SLC4A1	Ť
Solute carrier family 4 (anion exchanger),	SLC4A1	ı
member 1	SLC4A2	Т
Solute carrier family 4 (anion exchanger), member 2	3LC4A2	1
Solute carrier family 4 (anion exchanger),	SLC4A3	Т
member 3	3104/3	'
Solute carrier family 6 (GAMMA-	SLC6A1	Т
AMINOBUTYRIC ACID transporter), member		1
1		
Solute carrier family 6 (neurotransmitter	SLC6A3	Т
transporter, dopamine), member 3	3230710	٠
Solute carrier family 6 (neurotransmitter	SLC6A2	Т
transporter, noradrenaline), member 2	GEGG/12	•
Somatostatin receptor, SSTR2	SSTR2	G
Sphingomyelinase	SMPD1	E
Substance P		N
Succinate dehydrogenase 2	SDH2	E
Succinate denydrogenase 2 Succinate thiokinase		E
Succingle CoA synthase		F
Superoxide dismutase 1	SOD1	E E
Superoxide dismutase 3	SOD3	Ē
ouperoxide districtase o	0000	_

Surfactant pulmonary-associated protein A2 Surfactant pulmonary-associated protein B Surfactant pulmonary-associated protein C Surfactant pulmonary-associated protein D Surfeit 1 Survival of motor neuron 1, telomeric Talin T-BOX 2 T-BOX 3 TEK, tyrosine kinase, endothelial Telomerase protein component	SFTPA1 SFTPA2 SFTPB SFTPC SFTPD SURF1 SMN1 TLN TBX2 TBX3 TEK	TTTTTGTGGGEEE
Thiothon receptor	F2R	1
THOMBOTHOUGH:	THBD	1
Thrombopoietin	THPO	G
Thrombospondin	THBS1	G
Thromboxane A synthase 1	TBXAS1	İ
Thromboxane A2	TXA2	l
Thromboxane A2 receptor	TBXA2R	1.
Thyroglobulin	TG	G G
Thyroid hormone receptor, alpha	THRA	G
Thyroid hormone receptor, beta	THRB	G
Thyroid peroxidase	TPO	G
Thyroid receptor auxiliary protein	TRAP	G
Thyroid-stimulating hormone receptor	TSHR	G
Thyroid-stimulating hormone, alpha	TSHA	G
Thyroid-stimulating hormone, beta	TSHB	G
Thyrotropin releasing hormone receptor	TRHR	E
Topoisomerase I		E
Transacylase	TF	G
Transferrin	TFRC	G
Transferrin receptor	TGFB2	G
Transforming growth factor, beta 2	TGFBI	Ğ
Transforming growth factor, beta induced	TGFBR2	G
Transforming growth factor, beta receptor 2	TKT	E
Transketolase	TKTL1	
Transketolase-like 1	TPI1	F
Triosephosphate isomerase	11.11	F
Trypsin inhibitor		E E E T
Uncoupling protein 1	UROS	Ė
Uroporphyrinogen III synthase	VIPR	N
Vasoactive intestinal polypeptide receptor	V 11 1 1	G
Vasoinhibitory peptide	VNRA	T
Vitronectin receptor, alpha	VHL	Ġ
Von Hippel-Lindau gene		Ğ
Wolf-Hirschhorn syndrome candidate 1 gene	XDH	E
Xanthine dehydrogenase	,, <u>-,,</u>	_

- A set of probes, said probes being antibodies or antibody fragments which interact with specific expressed proteins encoded by gene sequences of a group of genes, said probes being for detecting relevant variants (mutations and polymorphisms), e.g. nucleotide substitutions (missense, nonsense, splicing and regulatory), small deletions, small insertions, small insertion deletions, gross insertions, gross deletions, duplications, complex rearrangements and repeat variations in a target group of genes; characterised in that said group is a core group of genes consisting of substantially all of the genes defined in claim 315.
- 317.A set according to claim 315 or 316 in which a minority of said probes for listed genes are absent.
- 318.A set according to claim 315 or 316 in which a limited number of additional probes are present together with substantially all of the probes for the listed genes.
- 319.A set according to claim 315 or 316 in which a limited number of probes are replaced by probes for non-listed genes.
- 320.A set of probes for a core group of genes according to any of claims 315 to 319 in which each gene to be probed is substantially similar (greater than 85% homologous) in sequence to the respective member of the core list of genes.
- 321.A set according to any of claims 315 to 320 consisting of probes for members of a sub-group of the core group.
- 322.A set according to any preceding claim in which said probes are in the form of an array and are spatially arranged at known locations on a substrate.
- 323.A set according to any preceding claim wherein said probes are on a substrate which forms part of or consists of one or more chip plate(s), for use in a chip assay for detection of said gene variants.
- 324.A set according to any preceding claim in which said probes are mass, electrostatic or fluorescence tagged probes.
- 325.A set according to claim 322 or 323 in which said substrate is a semiconductor microchip.
- 326.A set according to any preceding claim for use in a biological assay for detection of said gene variants.
- 327. A set according to any preceding claim for use in the measurement of differential gene expression levels.
- 328. A medical device including a set according to any preceding claim for use in an assay for detection of said gene variants.
- 329.A medical device including a set according to any of claims 315 to 327 for use in an array for detection of differential gene expression levels.
- 330. A method for use in assessing the genomic profile of a patient or individual, the method comprising testing for and detecting the presence or absence of DNA or RNA encoding the relevant structural variants (as defined in claim 315) in a target group of genes by hybridising a nucleic acid-containing

- sample from said patient or individual to a set according to any of claims 315 and 317 to 327 and relating the probe hybridisation pattern to said variations.
- 331. A method for use in assessing the the genomic profile of a patient or individual, the method comprising testing for and detecting the presence or absence of DNA or RNA encoding the relevant structural variants (as defined in claim 316) in a target group of genes by interacting an expressed-protein-containing sample from said patient or individual with a set of probes according to any of claims 316 to 327 and relating the probe interaction pattern to said variations.
- 332. Use of a set or device according to any of claims 315 to 327 for the prognosis and management of patients suffering from or at risk of dysfunction, damage or disease of the respiratory system or experiencing the clinical or social consequences following dysfunction, damage or disease of the respiratory system.
- 333. Use of a set or device according to any of claims 315 to 327 for predicting likely therapeutic response and adverse events following therapeutic intervention.
- 334. Use of a set or device according to any of claims 315 to 327 for predicting likely therapeutic response and adverse events following the intake of a specific drug.
- 335. Use of a set or device according to any of claims 315 to 327 for predicting likely patterns of symptom clusters (symptom profiles) in disease and the likelihood of subsequent, contingent, disease or symptoms.
- 336. Use of a set or device according to any of claims 315 to 327 for general health screening, occupational health purposes, healthcare planning on a population basis and other healthcare management utilisations.
- 337. Use of a set or device according to any of claims 315 to 327 for the development of new strategies of therapeutic intervention and in clinical trials.
- 338. Use of a set or device according to any of claims 315 to 327 for construction of and generation of algorithms for patient and healthcare management.
- 339. Use of a set or device according to any of claims 315 to 327 for modelling or assessing the impact of diseases or healthcare management strategies on individuals, groups, patient cohorts or populations
- 340. Use of a set or device according to any of claims 315 to 327 for modelling, assessing or exploring the theoretical impact of diseases and healthcare management strategies on individuals, groups, patient cohorts or populations.
- 341. Use of a set or device according to any of claims 315 to 327 for predicting optimum configuration/management of thereapeutic intervention.
- 342. A method according to claim 330 or 331 in which the identification of gene variants is indicative of a higher risk of developing the symptoms of, and/or the clinical or social consequences following, dysfunction, damage or disease of the respiratory system for the patient or individual.
- 343. A method for generating a model to assess whether a patient or individual or population or group is or are likely to develop the symptoms of, and/or the clinical or social consequences following, dysfunction, damage or disease of the respiratory system, which method comprises:
- i) obtaining DNA or RNA or protein samples from patients or individuals diagnosed as suffering from the symptoms of, and/or the clinical or social consequences following, dysfunction, damage or disease of the respiratory system:

- obtaining DNA or RNA or protein samples from a control group of subjects diagnosed as not suffering from the the symptoms of, and/or the clinical or social consequences following, dysfunction, damage or disease of the respiratory system;
- iii) analysing the samples obtained in i) and ii) to identify the polymorphic variations encoded in the core group of genes as defined in any of claims 315 to 321;
- iv) calculating the frequencies of these alleles in the samples from i) and ii);
- v) comparing the frequencies of these alleles in i) and ii);
- vi) performing a statistical analysis on the results from v) in order to generate a model for assessing the risk of developing the symptoms of, and/or the clinical or social consequences following, dysfunction, damage or disease of the respiratory system.
- 344. A method for assessing whether a given subject will be at risk of developing symptoms, which comprises comparing said subject's genotype with a model generated by the method of claim 343.
- 345. A method according to any of claims 330, 331, 343 and 344 wherein at least one step is computer-controlled.
- 346. An assay suitable for use in a method according to any of claims 330, 331, 343 and 344; said assay comprising means for determining the presence or absence of relevant polymorphic variants of the core group of genes as defined in any of claims 315 to 321 in a biological sample.
- 347. A formatted assay technique (kit) for use in assessing the risk of a patient or individual developing the symptoms of, and/or the clinical or social consequences following, dysfunction, damage or disease of the respiratory system; said kit comprising:
 - i) means for testing for the presence or absence or DNA or RNA encoding relevant polymorphic variants of the core group of genes as defined in claim 315 or 317 to 321 in a sample of human DNA;
 - ii) reagents for use in the detection process
 - readout indicating the probability of a patient or individual developing the symptoms of, and/or the clinical or social consequences following, dysfunction, damage or disease of the respiratory system.
- 348. A formatted assay technique (kit) for use in assessing the risk of a patient or individual developing the symptoms of, and/or the clinical or social consequences following, dysfunction, damage or disease of the respiratory system; said kit comprising:
 - i) means for testing for the presence or absence of proteins encoded by the core group of genes and/or relevant polymorphic variants of the core group of genes as defined in any of claims 316 to 321 in an expressed-protein-containing human sample;
 - ii) reagents for use in the detection process
 - readout indicating the probability of a patient or individual developing the symptoms of, and/or the clinical or social consequences following, dysfunction, damage or disease of the respiratory system.
- 349. A set of probes according to claim 315, wherein the probes are selected from

the group consisting of oligonucleotides and polynucleotides.

350.A set of nucleotide probes for detecting relevant variants (mutations and polymorphisms), e.g. nucleotide substitutions (missense, nonsense, splicing and regulatory), small deletions, small insertions, small insertion deletions, gross insertions, gross deletions, duplications, complex rearrangements and repeat variations in a target group of genes which relate to injury, inflammation, infection, immunity and/or repair; said probes being complementary to DNA and RNA sequences of said group of genes; characterised in that said group is a core group of genes consisting of substantially all of the following:

KEY TO 'PROTEIN FUNCTION' COLUMN

- E ENZYME
- T TRANSPORT & STORAGE
- S STRUCTURAL
- I IMMUNITY
- N NERVOUS TRANSMISSION
- G GROWTH & DIFFERENTIATION

IMMUNITY GENE LIST	HUGO gene symbol	Protein function
5,10-methylenetetrahydrofolate reductase (NADPH)	MTHFR	E
Acetylcholinesterase	ACHE	E
Acidic amino acid transporter		Ţ
Actin, alpha, cardiac	ACTC	S S S
Actin, alpha, skeletal	ACTA1	S
Actin, alpha, smooth, aortic	ACTA2	S
Actin, beta	ACTB	S S
Actin, gamma 2	ACTG2	S
ADAM (A disintegrin and metalloproteinase) 1	ADAM1	E E
ADAM (A disintegrin and metalloproteinase) 10	ADAM10	
ADAM (A disintegrin and metalloproteinase) 11	ADAM11	E
ADAM (A disintegrin and metalloproteinase) 12	2 ADAM12	E
ADAM (A disintegrin and metalloproteinase) 13	B ADAM13	Ε
ADAM (A disintegrin and metalloproteinase) 14	ADAM14	Ε
ADAM (A disintegrin and metalloproteinase) 15	5 ADAM15	Ε
ADAM (A disintegrin and metalloproteinase) 16	S ADAM16	E
ADAM (A disintegrin and metalloproteinase) 17	ADAM17	Ε
ADAM (A disintegrin and metalloproteinase) 18	3 ADAM18	E
ADAM (A disintegrin and metalloproteinase) 19	ADAM19	E
ADAM (A disintegrin and metalloproteinase) 2		E
ADAM (A disintegrin and metalloproteinase)		E
3A ,		
ADAM (A disintegrin and metalloproteinase) 3B	ADAM3B	E
ADAM (A disintegrin and metalloproteinase) 4	ADAM4	E

ADAM (A disintegrin and metalloproteinase) 6 ADAM (A disintegrin and metalloproteinase) 7 ADAM (A disintegrin and metalloproteinase) 8 ADAM (A disintegrin and metalloproteinase) 9 Adducin, alpha Adducin, beta Adenosine deaminase Adenosine receptor A1 Adenosine receptor A2A Adenosine receptor A3 Adenylate cyclase 1 Adenylate cyclase 2 Adenylate cyclase 3 Adenylate cyclase 4 Adenylate cyclase 5 Adenylate cyclase 6 Adenylate cyclase 7 Adenylate cyclase 8 Adenylate cyclase 9 Adrenergic receptor, alpha1 Adrenergic receptor, beta1 Adrenergic receptor, beta2 Adrenergic receptor, beta3	ADRA2 ADRB1 ADRB2 ADRB3	D Z Z Z Z Z M M M M M M M Z Z Z Z Z M O O M M M M
Aldosterone receptor Alpha 1 acid glycoprotein Alpha 2 macroglobulin alpha1-antitrypsin alpha2-antiplasmin Alpha-fetoprotein alpha-glucosidase, neutral AB alpha-glucosidase, neutral C Aminopeptidase P Amylo-1,6-glucosidase Amyloid beta A4 precursor protein Amyloid beta A4 precursor-like protein Androgen binding protein Androgen receptor Angiopoietin 1 Angiopoietin 2 Angiotensin converting enzyme Angiotensin receptor 1	AAG; AGP A2M PI PLI AFP GANAB GANC XPNPEP2 AGL APP APLP ABP AR ANGPT1 ANGPT2 ACE, DCP1	TOTIEEGEEENNTGGGETT

Angiotensinogen	AGT	E
Annexin 1	ANX 1	ī
Antidiuretic hormone receptor	ADHR	Ť
Anti-Mullerian hormone	AMH	Ġ
Antithrombin III	AT3	E
Apaf-1		S
Apolipoprotein E	APOE	T
Apoptosis antigen 1	APT1	i
Apoptosis antigen ligand 1	APT1LG1	i
Apoptosis-inducing factor	AIF	i
Arginosuccinate lyase	ASL	Ė
Aryl hydrocarbon receptor	AHR	T
Asparagine synthetase	AS	Ė
Aspartylglucosaminidase	AGA	E
Ataxia telangiectasia complementation group [Ğ
Ataxia telangiectasia gene, AT	ATM	Ğ
ATP-binding cassette transporter 7	ABC7	Ī
Attractin		i
Autoimmune regulator, AIRE	AIRE	I
B-cell CLL/lymphoma 1	BCL1	1
B-cell CLL/lymphoma 10	BCL10	1
B-cell CLL/lymphoma 3	BCL3	1
B-cell CLL/lymphoma 4	BCL4	I
B-cell CLL/lymphoma 5	BCL5	1
B-cell CLL/lymphoma 6	BCL6	1
B-cell CLL/lymphoma 7	BCL7	1
B-cell CLL/lymphoma 8	BCL8	1
B-cell CLL/lymphoma 9	BCL9	1
BCL2-associated X protein	BAX	G
BCL2-related protein A1	BCL2A1	G
Beckwith-Wiedemann region 1A	BWR1A	G
beta 2 microglobulin	B2M	i
Bleomycin hydrolase	BLMH	Ε
Bloom syndrome protein	BLM	G
Bradykinin receptor B1		1
Bradykinin receptor B2		1
Brain derived neurotrophic factor	BDNF	G
Brain derived neurotrophic factor (BDNF)	BDNFR	G
receptor		
BRCA1-associated RING domain gene 1	BARD1	G
Breakpoint cluster region	BCR	G
Breast cancer 1	BRCA1	G
Breast cancer 2	BRCA2	G
Breast cancer, ductal, 1	BRCD1	G
Breast cancer, ductal, 2	BRCD2	G
Butyrylcholinesterase	BCHE	E
C3 convertase	2211	E
Cadherin E	CDH1	G

Cadherin EP		G
Cadherin N	CDH2	G
Cadherin P	CDH3	G
Calbindin 1	CALB1	G
Calbindin D9K	CALB3	G
Calcineurin A1	CALNA1	l
Calcineurin A2	CALNA2	1
Calcineurin A3	CALNA3	1
Calcineurin B		1
Calcitonin receptor /Calcitonin gene-related	CALCR	Ν
peptide receptor		
Calcitonin/Calcitonin gene-related peptide	CALCA	N
alpha		
Calcium channel, voltage-dependent, alpha 1F	CACNA1F	Ν
subunit		
Calcium channel, voltage-dependent, Alpha-	CACNA1B	Ν
1B (CACNL1A5)		
Calcium channel, voltage-dependent, Alpha-	CACNA1C	Ν
1C		
Calcium channel, voltage-dependent, Alpha-	CACNA1D	Ν
1D		
Calcium channel, voltage-dependent, Alpha-	CACNA1E	Ν
1E (CACNL1A6)		
Calcium channel, voltage-dependent, Alpha-	CACNA2	Ν
2/delta		
Calcium channel, voltage-dependent, Beta 1	CACNB1	N
Calcium channel, voltage-dependent, Beta 3	CACNB3	Ν
Calcium channel, voltage-dependent, L type,	CACNA1S	Ν
alpha 1S subunit		
Calcium channel, voltage-dependent,	CACNG2	Ν
Neuronal, Gamma		
Calcium channel, voltage-dependent, P/Q	CACNA1A	Ν
type, alpha 1A subunit		
Calcium channel, voltage-dependent, T-type		Ν
Calmodulin 1	CALM1	G
Calmodulin 2	CALM2	G
Calmodulin 3	CALM3	G
Calmodulin-dependant protein kinase II	CAMK2A	G
Calnexin	CANX	G
Calpain	CAPN, CAPN3	Ε
Calretinin	CALB2	N
Canalicular multispecific organic anion	CMOAT	T
transporter		_
Carbonic anhydrase 3	CA3	E
Carbonic anhydrase 4	CA4	E
Carbonic anhydrase, alpha	CA1	E
Carbonic anhydrase, beta	CA2	Ε
Carboxylesterase 1	CES1	Ε

Cardiac-specific homeobox, CSX	CSX	G
Cartilage-hair hypoplasia gene	CHH	N
Caspase 1	CASP1	G
Catalase	CAT	1
Cathepsin G	CTSG	Е
CD1	CD1	i
CD10	CD10	1
CD100	CD100	j
CD101	CD101	i
CD103	CD103	i
CD106	CD106	i
CD107	CD107	i
CD108	CD108	i
CD109	CD109	ĺ
CD110	CD110	;
CD111	CD111	1
CD112	CD112	1
CD113	CD113	1
CD114	CD114	í
CD115	CD115	i I
CD116	CD115	; !
CD117	CD110	I
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CD118	CD118	l i
CD119	CD119	
CD12	CD12	1
CD120	CD120	l
CD121	CD121	!
CD122	CD122	!
CD123	CD123	!
CD124	CD124	l :
CD125	CD125	!
CD126	CD126	!
CD127	CD127	l .
CD128	CD128	!
CD129	CD129	1
CD13	CD13	
CD130	CD130	
CD131	CD131	ŀ
CD132	CD132	1
CD133	CD133	1
CD134	CD134	I
CD135	CD135	i
CD136	CD136	1
CD137	CD137	1
CD138	CD138	1
CD139	CD139	1
CD14	CD14	1
CD140	CD140	1

00444	05444
CD141	CD141
CD142	CD142
CD143	CD143
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CD148	CD148
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CD156	CD156
CD157	CD157
CD158	CD158
CD159	CD159
CD160	CD160
CD161	CD161
CD162	CD162
CD163	CD162
CD103 CD164	CD163
CD165	•
CD165 CD166	CD165
	CD166
CD17	CD17 !
CD19	CD19
CD2	CD2
CD20	CD20 I
CD22	CD22
CD23	CD23
CD24	CD24
CD25	CD25
CD26	CD26
CD27	CD27
CD28	CD28
CD3	CD3
CD30	CD30 I
CD31	CD31
CD33	CD33
CD34	CD34
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CD41	CD41	ı
CD42	CD42	i
CD43	CD43	
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CD44	CD44	l
CD45	CD45	l
CD46	CD46 ·	1
CD47	CD47	1
CD48	CD48	i
CD5	CD5	
		J
CD50	CD50	1
CD52	CD52	1
CD53	CD53	i
CD55	CD55	i
CD57	CD57	i
CD58	CD58	
		!
CD59	CD59	
CD6	CD6	1
CD60	CD60	1
CD63	CD63	1
CD65	CD65	ı
CD66	CD66	i
CD67	CD67	•
CD68	CD68	;
		i,
CD69	CD69	!
CD7	CD7	
CD70	CD70	. 1
CD71	CD71	1
CD72	CD72	1
CD73	CD73	1
CD74	CD74	i
CD75	CD75	i
CD76	CD76	;
CD77	CD77	1
CD78	CD78	i
CD79	CD79	I
CD8	CD8	Į.
CD80	CD80	1
CD81	CD81	1
CD83	CD83	i
CD84	CD84	
CD85		1
	CD85	1
CD86	CD86	1
CD88	CD88	1
CD89	CD89	1
CD9	CD9	i
CD90	CD90	i
CD91	CD91	1
CD92	CD92	!
0032	CDaz	1

CD93 CD94 CD96 CD97 CD98 CD99 Cell adhesion molecule, intercellular, ICAM Cell adhesion molecule, leukocyte-endothelial, LECAM (CD62)	CD93 CD94 CD96 CD97 CD98 CD99 ICAM1 LECAM1	 - - - - - - - - - - - - -
Cell adhesion molecule, liver, LCAM	LCAM	G
Cell adhesion molecule, neural, NCAM1	NCAM120	G
Cell adhesion molecule, neural, NCAM120	NCAM120	G
Cell adhesion molecule, neural, NCAM2	NCAM2	G
Cell adhesion molecule, platelet-endothelial,	PECAM1	G
PECAM Cell adhesion molecule, vascular, VCAM	VCAM1	G
Chediak-Higashi syndrome 1 gene	CHS1	Ť
Chemokine MCAF	MCAF	i
Chemokine receptor CCR2	CCR2	i
Chemokine receptor CCR3	CCR3	ļ
Chemokine receptor CCR5	CCR5	1
Chemokine receptor CXCR1	CXCR1	- 1
Chemokine receptor CXCR2	CXCR2	1
Chemokine receptor CXCR4	CXCR4	1
Cholesterylester hydrolase		l
Chondritin Sulphate A - placental receptor		1
Chromogranin A	CHGA	G
Chymase	CHY1	
Clathrin		T
CoA transferase		Ε
Collagen I alpha 1	COL1A1	S
Collagen I alpha 2	COL1A2	S
Collagen II alpha 1	COL2A1	S
Collagen III alpha 1	COL3A1	S
Collagen IV alpha 1	COL4A1	S
Collagen IV alpha 2	COL4A2	S
Collagen IV alpha 3	COL4A3	S
Collagen IV alpha 4	COL4A4	S
Collagen IV alpha 5	COL4A5	S
Collagen IV alpha 6	COLAAA FDMA	S
Collagen IX alpha 2	COL9A2, EDM2 COL9A3	S S
Collagen IX alpha 3	COLGAS	S
Collagen receptor Collagen V alpha 1	COL5A1	S
Collagen V alpha 2	COL5A1	S
Collagen VI alpha 1	COLGA2 COL6A1	S
Collagen VI alpha 2	COL6A2	S
Collagen VI alpha 3	COL6A3	S
Conagon vi aipna o	00000	5

Collagen VII alpha 1	COL7A1	S
Collagen X alpha 1	COL10A1	S
Collagen X alpha 1	COL11A1	S
Collagen XI alpha 2	COL11A2	S
Collagen XVII alpha 1	COL17A1	S
Collagenic-like tail subunit of asymmetric	COLQ	Ε
acetylcholinesterase		
Colony-stimulating factor 1	CSF1	G
Colony-stimulating factor 1 receptor	CSF1R	G
Colony-stimulating factor 2	CSF2	G
Colony-stimulating factor 2 alpha receptor	CSF2RA	G
Colony-stimulating factor 2 beta receptor	CSF2RB	G
Colony-stimulating factor 3	CSF3	G
Colony-stimulating factor 3 receptor	CSF3R	G
Complement component C1 inhibitor	C1NH	Ī
Complement component C1qa	C1QA	1
Complement component C1qb	C1QB	Ī
Complement component C1qg	C1QG	i
Complement component C1r	C1R	i
Complement component C1s	C1S	1
Complement component C2	C2	1
Complement component C3	C3	1
Complement component C4A	C4A	1
Complement component C4B	C4B	1
Complement component C5	C5	1
Complement component C6	C6	1
Complement component C7	C7	ł
Complement component C8	C8B	1
Complement component C9	C9	1
Complement component receptor 1	CR1	1
Complement component receptor 2	CR2	l
Complement component receptor 3	CR3	1
Contactin	CNTN1	G
Core-binding factor, alpha 1	CBFA1	G
Core-binding factor, alpha 2	CBFA2	G
Core-binding factor, beta	CBFB	G
Cortico-steroid binding protein		T
Corticosteroid nuclear receptor		1
Corticotrophin-releasing hormone	CRH	T
Corticotrophin-releasing hormone receptor	CRHR1	T
Cortisol receptor		-
C-reactive protein CRP		- 1
c-src tyrosine kinase	CSK	G
Cyclic AMP response element binding protein	CREB	G
Cyclic AMP-dependent protein kinase	PKA	E
Cyclic nucleotide phosphodiesterase 1B	PDE1B	Ε
Cyclic nucleotide phosphodiesterase 1B1	PDE1B1	E
Cyclic nucleotide phosphodiesterase 2A3	PDE2A3	Ε

Cyclic nucleotide phosphodiesterase 3B Cyclic nucleotide phosphodiesterase 4A Cyclic nucleotide phosphodiesterase 4A Cyclic nucleotide phosphodiesterase 4C Cyclic nucleotide phosphodiesterase 5A Cyclic nucleotide phosphodiesterase 6B Cyclic nucleotide phosphodiesterase 6B Cyclic nucleotide phosphodiesterase 7 Cyclic nucleotide phosphodiesterase 8 Cyclic nucleotide phosphodiesterase 8 Cyclic nucleotide phosphodiesterase 9A Cyclin D Cyclin-dependent kinase 1 Cyclin-dependent kinase 10 Cyclin-dependent kinase 3 Cyclin-dependent kinase 3 Cyclin-dependent kinase 4 Cyclin-dependent kinase 5 Cyclin-dependent kinase 6 Cyclin-dependent kinase 7 Cyclin-dependent kinase 8 Cyclin-dependent kinase 9	PDE3A PDE3B PDE4A PDE4C PDE5A PDE6A PDE6B PDE7 PDE8 PDE9A CCND1 CDK1 CDK1 CDK1 CDK2 CDK2 CDK3 CDK4 CDK5 CDK6 CDK5 CDK6 CDK7 CDK8 CDK9	
Cyclin-dependent kinase inhibitor 1A (P21, CIP1)	CDKN1A	G
Cyclin-dependent kinase inhibitor 1B (P27, KIP1)	CDKN1B	G
Cyclin-dependent kinase inhibitor 1C (P57, KIP2)	CDKN1C	G
Cyclin-dependent kinase inhibitor 2A (p16) Cyclin-dependent kinase inhibitor 3 Cyclooxygenase 1 Cyclooxygenase 2 Cyclophilin CYP11A1 CYP11B1 CYP11B2 CYP17 CYP19 CYP1A1 CYP1A2 CYP1A1 CYP21 CYP21 CYP24 CYP27 CYP27 CYP27B1 CYP2A1 CYP2A13 CYP2A3 CYP2A6V2	CDKN2A CDKN3 COX1 COX2 CYP11A1 CYP11B1 CYP11B2 CYP17 CYP19 CYP1A1 CYP1A2 CYP1A1 CYP21 CYP24 CYP27 PDDR CYP2A1 CYP2A1 CYP2A3 CYP2A6V2	0000-6000000000000000000000000000000000

CYP2A7 CYP2B6 CYP2C18 CYP2C19 CYP2C8 CYP2C9 CYP2D6 CYP2E1 CYP2F1 CYP2J2 CYP3A3 CYP3A4 CYP3A5 CYP3A7 CYP4A11 CYP4B1 CYP4F2 CYP4F3 CYP5A1 CYP5A1 CYP7A CYP8 Cystathionase Cystathione beta synthase	CYP2A7 CYP2B6 CYP2C18 CYP2C19 CYP2C8 CYP2C9 CYP2D6 CYP2E1 CYP2F1 CYP2J2 CYP3A3 CYP3A4 CYP3A5 CYP3A7 CYP4A11 CYP4B1 CYP4F2 CYP4F3 CYP51 CYP5A1 CYP7A CYP8 CTH CBS	
Cystic fibrosis transmembrane conductance	CFTR	N
regulator, CFTR Cytidine deaminase Cytidine-5-prime-triphosphate synthetase Cytochrome a Cytochrome c Cytochrome c oxidase, MTCO	CDA CTPS	
Cytokine-suppressive antiinflammatory drugbinding protein 1	CSBP1	I
Cytokine-suppressive antiinflammatory drug- binding protein 2	CSBP2	i
Defender against cell death 1 Deleted in colorectal carcinoma Deoxycorticosterone (DOC) receptor Deoxycytidine kinase DCK	DAD1 DCC	G G E E
Dihydrolipoyl dehydrogenase 2 Dihydrolipoyl transacetylase Dopamine receptors D1 Dopamine receptors D2 Dopamine receptors D3 Dopamine receptors D4 Dopamine receptors D5 Duffy blood group Dynamin	PDHA PDHA DRD1 DRD2 DRD3 DRD4 DRD5 FY DNM1	LEEXXXXXX G

EB1	51.464	G
Elastase 1	ELAS1	E
Elastase 2	ELAS2	Ε
Endoglin	ENG	S
Endo-P-D-glucuronidase		1
Enolase	ENO1	Ε
Erythroid kruppel-like factor	EKLF	G
Erythropoietin	EPO	1
Erythropoietin receptor	EPOR	1
Estrogen receptor	ESR	G
EWS RNA-binding protein	EWSR1	G
Factor 1 (No. one)	F1	Τ
Factor B, properdin		1
Factor D		1
Factor H	HF1	Ì
Factor I (letter I)	IF	i
Factor III	F3	i
Factor IX	F9	i
Factor V	F5	i
Factor VII	F7	i
Factor VIII	F8	i
Factor X	F10	i
Factor XI	F11	i
Factor XII	F12	i
Factor XIII A & B	F13A & F13B	i
Fanconi anemia, complementation group C	FANCC	Ť
Fanconi anemia, complementation group D	FANCD	Ť
Fc fragment of IgG, low affinity IIa, receptor for		Ġ
(CD32)	1 001(2)(J
Fc receptor		1
Fibrinogen alpha	FGA	s
Fibrinogen beta	FGB	S
Fibrinogen gamma	FGG	S
Fibronectin precursor	FN1	
Follicle stimulating hormone receptor		G
	FSHR, ODG1	G
Follicules lymphome verient translagation 1	FSHB	G
Follicular lymphoma variant translocation 1	FVT1	1
Forkhead rhabdomyosarcoma gene	FKHR	G
Forkhead transcription factor 7	FKHL7	G
Galactosyltransferase 1	GT1	G
Galactosyltransferase, alpha 1,3	GGTA1	G
Galactosyltransferase, beta 3	B3GALT	G
Glial-cell derived neurotrophic factor (GDNF)		Ν
receptor		
Glial-cell derived neurotrophic factor, GDNF	GDNF	Ν
Glucosaminyl (N-acetyl) transferase 2, I-	GCNT2	Ε
branching enzyme		
Glutamate receptor 1	GLUR1	Ν

Glutamate receptor 2	GLUR2	Ν
Glutamate receptor 3	GLUR3	Ν
Glutamate receptor 4	GLUR4	N
Glutamate receptor 5	GLUR5	Ν
Glutamate receptor 6	GLUR6	Ν
Glutamate receptor 7	GLUR7	Ν
Glutamate receptor, ionotropic, NMDA 1	NMDAR1	Ν
Glutamate receptor, ionotropic, NMDA 2A	NMDAR2A	Ν
Glutamate receptor, ionotropic, NMDA 2B	NMDAR2B	Ν
Glutamate receptor, ionotropic, NMDA 2C	NMDAR2C	N
Glutamate receptor, ionotropic, NMDA 2D	NMDAR2D	N
Glutamine synthase		E
Glutathione	GSH	Т
Glutathione peroxidase, GPX1	GPX1	E
Glutathione peroxidase, GPX2	GPX2	E
Glutathione S-transferase mu 1, GSTM1	GSTM1	Ē
Glutathione S-transferase mu 4, GSTM4		E
Glutathione S-transferase, GSTZ1	GSTZ1	E
Glyceraldehyde-3-phosphate dehydrogenase,	GAPDH	Ē
GAPDH	O/ 11 D. 1	_
Glycerol kinase	GK	Ε
Glycinamide ribonucleotide (GAR)	GART	Ε
transformylase		
Glycophorin A	GYPA	S
Glycophorin B	GYPB	S S
Glycophorin C	GYPC	S
Glycosyltransferases, ABO blood group	ABO	Ε
Glypican 3	GPC3, SDYS	G
Gonadotropin releasing hormone receptor	GNRHR	G
Growth-regulated protein precursor, GRO	GRO	1
Guanine nucleotide-binding protein, alpha	GNAI1	Ν
inhibiting activity polypeptide 1, GNAI1		
Guanine nucleotide-binding protein, alpha	GNAI2	Ν
inhibiting activity polypeptide 2, GNAI2		
Guanine nucleotide-binding protein, alpha	GNAI3	Ν
inhibiting activity polypeptide 3, GNAI3		
Guanine nucleotide-binding protein, alpha	GNAS1	Ν
stimulating activity polypeptide, GNAS1		
Guanine nucleotide-binding protein, alpha	GNAS2	Ν
stimulating activity polypeptide, GNAS2		
Guanine nucleotide-binding protein, alpha	GNAS3	N
stimulating activity polypeptide, GNAS3	S, 133	
Guanine nucleotide-binding protein, alpha	GNAS4	Ν
stimulating activity polypeptide, GNAS4	3.17.13	• •
Guanine nucleotide-binding protein, q	GNAQ	Ν
polypeptide	J. 17 (G	1.4
H(+), K(+) - ATPase	ATP4B	Ν
Haemoglobin alpha 1	HBA1	T
LICICALIA ANGLI CALDICA I		

Haemoglobin alpha 2	HBA2 HBB	Ţ
Haemoglobin beta	HBD	T
Haemoglobin delta		Ţ
Haemoglobin gamma A	HBG1	T
Haemoglobin gamma B	HBG2	T
Haemoglobin gamma G	HBGG	T
Haptoglobin, alpha 1	HPA1	- 1
Haptoglobin, alpha 2	HPA2	ı
Haptoglobin, beta	HPB	1
Hemochromatosis	HFE	T
Heparin binding epidermal growth factor	HBEGF	G
Heparin Cofactor II	HCF2	I
Hepatitis B virus integration site 1	HVBS1	- !
Hepatitis B virus integration site 2	HVBS6	- I
High mobility group protein C	HMGIC	G
High mobility group protein Y	HMGIY	G
Histamine receptors, H1		Ν
Histamine receptors, H2		Ν
Histamine receptors, H3		Ν
Histatin 1		1
Histatin 2		1
Histatin 3	HTN3	I
HLA-B associated transcript 1	BAT1	I
Holocarboxylase synthetase	HLCS	Ε
Homeobox 11	HOX11	G
Homeobox HB24	HLX1	G
IC7 A and B		ı
Ikaros gene	IKAROS	G
Immunoglobulin alpha (IgA)	IGHA	l
Immunoglobulin delta (IgD)	IGHD	l
Immunoglobulin E (IgE) reponsiveness gene	IGER	1
Immunoglobulin E (IgE) serum concentration	IGES	1
regulator gene		
Immunoglobulin epsilon (IgE)	IGHE	1
Immunoglobulin gamma (IgG) 2	IGHG2	i
Immunoglobulin heavy mu chain	IGHM	l
Immunoglobulin J polypeptide	IGJ	ı
Immunoglobulin kappa constant region	IGKC	l
Immunoglobulin kappa variable region	IGKV	- 1
Insulin-like growth factor 1	IGF1	G
Insulin-like growth factor 1 receptor	IGF1R	G
Insulin-like growth factor 2	IGF2	G
Insulin-like growth factor 2 receptor	IGF2R	G
Integrin beta 1	ITGB1	G
Integrin beta 2	ITGB2	G
Integrin beta 3	ITGB3	G
Integrin beta 4	ITGB4	G
Integrin beta 5	ITGB5	G

Integrin beta 6	ITGB6	G
Integrin beta 7	ITGB7	Ğ
Integrin, alpha 1	ITGA1	G
Integrin, alpha 2	ITGA2	G
Integrin, alpha 4	ITGA4	G
Integrin, alpha 5	ITGA5	G
Integrin, alpha 6	ITGA6	G
Integrin, alpha 0	ITGAM	G
Intercellular adhesion molecule 1	ICAM1	G
Intercellular adhesion molecule 2		. !
	ICAM2	ı.
Intercellular adhesion molecule 3	ICAM3	ı.
Interferon alpha	IFNA1	l i
Interferon beta	IFNB	1
Interferon gamma	IFNG	1
Interferon gamma receptor 1	IFNGR1	1
Interferon gamma receptor 2	IFNGR2	1
Interferon regulatory factor 1	IRF1	- 1
Interferon regulatory factor 4	IRF4	1
Interleukin(IL) 1 receptor	IL1R	- 1
Interleukin(IL) 1, alpha	IL1A	- 1
Interleukin(IL) 1, beta	IL1B	1
Interleukin(IL) 10	IL10	1
Interleukin(IL) 10 receptor	IL10R	- 1
Interleukin(IL) 11	IL11	1
Interleukin(IL) 11 receptor	IL11R	1
Interleukin(IL) 12	IL12	1
Interleukin(IL) 12 receptor, beta 1	IL12RB1	1
Interleukin(IL) 13	IL13	1
Interleukin(IL) 13 receptor	IL13R	1
Interleukin(IL) 2	IL2	1
Interleukin(IL) 2 receptor, alpha	IL2RA	1
Interleukin(IL) 2 receptor, gamma	IL2RG	i
Interleukin(IL) 3	IL3	i
Interleukin(IL) 3 receptor	IL3R	i
Interleukin(IL) 4	IL4	i
Interleukin(IL) 4 receptor	IL4R	i
Interleukin(IL) 5	IL5	i
Interleukin(IL) 5 receptor	IL5R	i
Interleukin(IL) 6	IL6	i
Interleukin(IL) 6 receptor	IL6R	1
Interleukin(IL) 7	IL7	; 1
Interleukin(IL) 7 receptor	IL7R	l I
· · ·		i I
Interleukin(IL) 8	IL8	!
Interleukin(IL) 8 receptor	IL8R	{
Interleukin(IL) 9	IL9	
Interleukin(IL) 9 receptor	IL9R	!
Interleukin(IL) receptor antagonist 1	IL1RN, IL1RA	١
Janus kinase 1	JAK1	G

Janus kinase 2 Janus kinase 3 Kallikrein 3 Kell blood group precursor Kininogen, High molecular weight Kynureninease Lactotransferrin Laminin 5, alpha 3	JAK2 JAK3 KAK3 XK, KEL KNG LTF LAMA3	GGITIETG
Laminin 5, beta 3	LAMB3	G
Laminin 5, gamma 2	LAMC2	Ğ
Laminin M	LAMM	Ğ
Laminin receptor 1	LAMR1	Ğ
·	LTBP2	Ğ
protein 2		_
Lectin, mannose-binding 1	LMAN1	ı
Lectin, mannose-binding 2	MBL2	1
Leptin	LEP	G
Leptin receptor	LEPR	G
Leukaemia inhibitory factor	LIF	G
Leukaemia inhibitory factor receptor	LIFR	G
Leukin		i
Leukocyte-specific transcript 1	LST-1	ı
Leukotriene A4 hydrolase		1
Leukotriene A4 synthase	LTA4S	E
Leukotriene B4 receptor		1
Leukotriene B4 synthase	LTB4S	Ε
Leukotriene C4 receptor		1
Leukotriene C4 synthase	LTC4S	Ε
Leukotriene D4/E4 receptor		I
LIM homeobox protein 1	LHX1	G
LIM homeobox protein 2	LHX2	G
LIM homeobox protein 3	LHX3	G
LIM homeobox protein 4	LHX4	G
LIM-domain only protein 1	LMO1	G
LIM-domain only protein 2	LMO2	G
LIM-domain only protein 3	LMO3	G
LIM-domain only protein 4	LMO4	G
LIM-Kinase I (LINK-I)		l
Lipocortin 1	ANX4	1
Lipoprotein-associated coagulation factor	LACI	I
Lipoxygenase 12 (platelets)	LOG12	- 1
Lipoxygenase 5 (leukocytes)		1
Lymphoblastic leukemia derived sequence 1	LYL1	ı
Lymphocyte-specific protein tyrosine kinase	LCK	l
Lymphoid enhancer-binding factor	LEF-1	G
lymphotoxin		1
Lysozyme	LYZ	!
Macrophage activating factor	MAF	1

Macrophage inflammatory protein-1 Macrophage inflammatory protein-1 receptor	MIP1	1
Macrophage inflammatory protein-2	MIP2	
Macrophage inflammatory protein-2 receptor		'
MAD (mothers against decapentaplegic,	MADH3	Ġ
Drosophila) homologue 3		Ŭ
MAD (mothers against decapentaplegic,	MADH4	G
Drosophila) homologue 4		
Malignant proliferation, eosinophil gene	MPE	1
Mannose binding protein	MBP	1
Mannosidase, alpha B lysosomal	MANB	Ε
Marenostrin	MEFV	T
Matrix metalloproteinase 1	MMP1	Ε
Matrix metalloproteinase 10	MMP10	E
Matrix metalloproteinase 11	MMP11	Ε
Matrix metalloproteinase 12	MMP12	Ε
Matrix metalloproteinase 13	MMP13	E
Matrix metalloproteinase 14	MMP14	E
Matrix metalloproteinase 15 Matrix metalloproteinase 16	MMP15	E
Matrix metalloproteinase 17	MMP16 MMP17	E
Matrix metalloproteinase 17	MMP18	Ε
Matrix metalloproteinase 19	MMP19	E
Matrix metalloproteinase 2	MMP2	E
Matrix metalloproteinase 3	MMP3, STMY1	E
Matrix metalloproteinase 4	MMP4	E
Matrix metalloproteinase 5	MMP5	Ē
Matrix metalloproteinase 6	MMP6	E
Matrix metalloproteinase 7	MMP7	E
Matrix metalloproteinase 8	MMP8	E
Matrix metalloproteinase 9	MMP9	Ε
MHC Class I: A		1
MHC Class I: B		1
MHC Class I: C		1
MHC Class I: LMP-2, LMP-7		-
MHC Class I: Tap1	ABCR, TAP1	1
MHC Class II: DP	HLA-DPB1	١
MHC Class II: DQ		
MHC Class II: DR	TARA ROSA	1
MHC Class II: Tap2	TAP2, PSF2	- 1
MHC Class II:Complementation group A MHC Class II:Complementation group B	MHC2TA	1
MHC Class II:Complementation group C	rfxank RFX5	1
MHC Class II:Complementation group D	RFXAP	l I
Monocyte chemoattractant protein 1	MCP1	1
Mucin 18	MUC18	Ť
Mutated in colorectal cancers, MCC	MCC	Ġ
MutL homolog 1	MLH1	G
		9

MutS homolog 2	MSH2	G
MutS homolog 3	MSH3	G
Myeloid leukemia factor-1	MLF1	1
Myeloperoxidase	MPO	<u> </u>
Myoglobin		T
Myosin 5A	MYO5A	S
N-acyl hydrolase		I
NADPH oxidase		ı
NADPH-dependent cytochrome P450	POR	E
reductase	NDANDA	,
Natural resistance-associated macrophage	NRAMP1	ı
protein 1		
NB6	NOT	ı
Nerve growth factor	NGF	G
Nerve growth factor receptor	NGFR	G
Neurofibromin 1	NF1	G
Neurofibromin 2	NF2	G
Neurokinin A	NKNA	N
Neurokinin B	NKNB	N
Neuropeptide Y	NPY	N
Neuropeptide Y receptor Y1	NPY1R	N
Neuropeptide Y receptor Y2	NPY2R	N
Neutral endopeptidase	NOT4	E
Neutrophil cystolic factor 1	NCF1	l
Neutrophil cystolic factor 2	NCF2	_
Nitric oxide synthase 1, NOS1	NOS1	E
Nitric oxide synthase 2, NOS2	NOS2	E
Nitric oxide synthase 3, NOS3	NOS3	E
Norrie disease protein	NDP	G
Notch 3	NOTCH3	G
Notch ligand - jagged 1	JAG1, AGS	G
Nuclear factor I-kappa-B-like gene	IKBL	ı
Nuclear factor kappa beta	NFKB	ı
Nuclear factor of activated T cells (NFAT)	NFATC	G
complex, cytosolic	\	_
Nuclear factor of activated T cells (NFAT)	NFATP	G
complex, preexisting component	NIDOKA	_
Nucleoside diphosphate kinase-A	NDPKA	E
Oncogene bcl2		G
Oncogene ELK1	ELK1	G
Oncogene ELK2	ELK2	G
Oncogene ERG (early reponse gene)		G
Oncogene GLI1	GLI	G
Oncogene GLI2	GLI2	G
Oncogene GLI3	GLI3	G
Oncogene spi1		G
Oncogene TEL	ETV6	G
Oncostatin M	OSM	G

Oncostatin M receptor Ornithine delta-aminotransferase Osteonectin Osteopontin Paired box homeotic gene 3 Paired box homeotic gene 7 Patched (Drosophila) homolog, PTCH Peanut-like 1 Phagocytin Phenylethanolamine N-methyltransferase,	OSMR OAT ON OPN PAX3 PAX7 PTCH PNUTL1	G E G G G G E
PNMT Phosphatidylinositol glycan, class A	PIGA	G
Phosphatidylinositol glycan, class A (paroxysmal nocturnal hemoglobinuria) Phospholipase A2, group 10 Phospholipase A2, group 1B Phospholipase A2, group 2A Phospholipase A2, group 2B Phospholipase A2, group 4A Phospholipase A2, group 4C Phospholipase A2, group 5 Phospholipase C alpha Phospholipase C beta Phospholipase C delta Phospholipase C gamma Phospholipase C gamma Phospholipase C gamma Phosphomannomutase-2 Plakophilin 1 Plasminogen Plasminogen activator inhibitor 1 Plasminogen activator receptor, Urokinase Plasminogen activator, Tissue Plasminogen activator, Urokinase Platelet glycoprotein 1b, alpha Platelet glycoprotein 1b, gamma Platelet glycoprotein 1b, gamma Platelet glycoprotein V Platelet-activating factor acetylhydrolase 1B Platelet-activating factor receptor Poliovirus receptor Potassium channel, calcium-activated,	PLA2G10 PLA2G1B PLA2G2A PLA2G2B PLA2G4A PLA2G4C PLA2G5 PLA2G6 PLCD1 PLCD1 PLCG1 PMM2 PKP1 PLG PAI1 PAI2 UPAR; PLAUR PLAT; TPA UPA; PLAU GP1BA GP1BB GP1BG GP9 GP5 PAFAH1B1 or LIS1 PAFAH2 PAFR PVR, PVS KCNN4	
Potassium inwardly-rectifying channel J1 Potassium inwardly-rectifying channel J11 Potassium voltage-gated channel A1 Potassium voltage-gated channel E1	KCNJ1 KCNJ11 KCNA1 KCNE1	N N N

Potassium voltage-gated channel Q1	KCNQ1	Ν
Potassium voltage-gated channel Q2	KCNQ2	Ν
Potassium voltage-gated channel Q3	KCNQ3	N
Prekallikrein		1
Preproenkephalin	PENK	Ν
Procollagen N-protease		Ε
Promyelocytic leukemia gene	PML	G
Proopiomelanocortin	POMC	N
Properdin P factor, complement	PFC, PFD	1
Prostacyclin synthase	·	i
Prostaglandin (PG) D synthase, hematopoietic	PGDS	E
Prostaglandin 15-OH dehydrogenase	HGPD; PGDH	ī
Prostaglandin D - DP receptor	,	i
Prostaglandin E1 receptor		1
Prostaglandin E2 receptor		i
Prostaglandin E3 receptor		i
Prostaglandin F - FP receptor		i
Prostaglandin I2 receptor		Ť
Prostaglandin IP receptor		i
Prostaglandin isomerase		Ġ
Prostaglandin-endoperoxidase synthase 2	PTGS2	Ğ
Protease inhibitor 1		T
Protein C	PROC	i
Protein C inhibitor	PCI	1
Protein kinase A		Е
Protein kinase C, alpha	PRKCA	E
Protein kinase C, gamma	PRKCG	E
Protein kinase DNA-activated	PRKDC	Ε
Protein kinase G		Ε
Protein phosphatase 1, regulatory (inhibitor)	PPP1R3	Ε
subunit 3		
Protein phosphatase 2, regulatory subunit A,	PPP2R1B	Ε
beta isoform		
Protein S	PROS1	1
Protein tyrosine phosphatase, non-receptor	PTPN12	G
type 12		
Proteinase 3		ļ
Prothrombin precursor	F2	1
Purine nucleoside phosphorylase	NP	Ε
Pyruvate decarboxylase	PDHA	E
Retinoblastoma 1	RB1	G
Retinol binding protein 4	RBP4	T
Rhesus blood group, CcEe antigens	RHCE	Т
Rhesus blood group, D antigen	RHD	Т
Rhesus blood group-associated glycoprotein	RHAG	T
Ribosomal protein S19	RPS19	E
RIGUI	RIGUI	G
S100 calcium-binding protein A1	S100A1	Ν

	040040	
5,00		N
9		N
S100 calcium-binding protein A4	S100A4	Ν
S100 calcium-binding protein A5	S100A5	Ν
- · · · · · · · · · · · · · · · · · · ·		Ν
- · · · · · · · · · · · · · · · · · · ·		N
_ :		
J.	•	N
- · · · · · · · · · · · · · · · · · · ·		N
- · · · · · · · · · · · · · · · · · · ·		N
S100 calcium-binding protein P	S100P	Ν
SAP (SLAM-associated protein)	SH2D1A	1
	SELE	Ν
		N
	SELP	N
	HTR1A	N
	HTR1B	N
	HTR1C	Ν
Serotonin receptor, 5HT1D	HTR1D	Ν
Serotonin receptor, 5HT1E	HTR1E	Ν
	HTR1F	Ν
	HTR2A	N
e e i e i e i e i e i e i e i e i e i e	HTR2B	N
	HTR2C	N
	HTR3	N
Солотон, тоторит, тот	HTR4	N
Serotonin receptor, 5HT5	HTR5	Ν
Serotonin receptor, 5HT6	HTR6	Ν
Serotonin receptor, 5HT7	HTR7	Ν
Severe combined immunodeficiency, type A	SCIDA	1
(Athabascan)		
Signal transducer and activator of transcription	STAT1	G
1		
•	STATO	G
Signal transducer and activator of transcription	51A12	G
2	07.70	_
Signal transducer and activator of transcription	SIAI3	G
3		
Signal transducer and activator of transcription	STAT4	G
4		
Signal transducer and activator of transcription	STAT5	G
5		_
Signaling lymphocyte activation molecule	SLAM	ı
	SIX1	•
Sine oculis homeobox, drosophila, homolog 1		G
Sine oculis homeobox, drosophila, homolog 2	SIX2	G
Sjoegren (Sjogren) syndrome antigen A1	SSA1	ł
Sodium channel, non-voltage gated 1, alpha	SCNN1A	Ν
Sodium channel, non-voltage gated 1, beta	SCNN1B	Ν
Sodium channel, non-voltage gated 1, gamma	SCNN1G	Ν
Sodium channel, voltage gated, type V, alpha	SCN5A	N
Codiani chamici, rollago galoa, typo v, alpha		. 4

polypeptide		
Sodium channel, voltage-gated, type 1, beta	SCN1B	Ν
polypeptide		
Solute carrier family 19 (folate transporter),	SLC19A1	Т
member 1		•
Solute carrier family 20, member 1	SLC20A1	Т
Solute carrier family 20, member 2	SLC20A2	Ť
Solute carrier family 5 (sodium/glucose	SLC5A1	Ť
transporter), member 1	3233	•
Solute carrier family 5 (sodium/glucose	SLC5A2	Т
transporter), member 2	3133.12	•
Solute carrier family 5 (sodium/glucose	SLC5A5	Т
transporter), member 5	0100/10	•
Solute carrier family 5, member 3	SLC5A3	Т
Sorcin	SRI	Ť
Sperm protamine P1	PRM1	Ġ
Sperm protamine P2	PRM2	G
Stem cell factor	SCF	G
Stromal derived factor 1	SDF1	G
Succinate dehydrogenase 1	SDH1	E
Succinate thiokinase	33	E
Superoxide dismutase 1	SOD1	E
Superoxide dismutase 3	SOD3	Ē
SYK-related tyrosine kinase	SRK	Ī
Talin	TLN	Ġ
Talin, TLN		s
T-cell acute lymphocytic leukemia 1	TAL1	Ĭ
T-cell acute lymphocytic leukemia 2	TAL2	i
T-cell receptor, alpha	TCRA	i
T-cell receptor, delta	TCRD	i
Tenascin (cytotactin)		S
Tenascin XA	TNXA	Š
Terminal deoxynucleotidyltransferase	TDT	Ī
Terminal deoxynucleotidyltransferase, TDT		E
Thrombin receptor	F2R	1
Thrombopoietin	THPO	Ġ
Thrombospondin	THBS1	Ğ
Thromboxane A synthase 1	TBXAS1	Ī
Thromboxane A2	TXA2	i
Thromboxane A2 receptor	TBXA2R	i
Thy-1 T-cell antigen	THY1	İ
Thymic humoral factor		İ
Thymopoietin	TMPO	Ġ
Thymosin	2	Ī
TIE receptor tyrosine kinase	TIE-1	Ġ
Tip-associated protein	TAP	Ī
Toll-like receptor 4	TLR4	i
Topoisomerase I	, ,	Ė
p = 10011101000 1		-

Topoisomerase II Transcobalamin 2, TCN2 Transcription factor 3 Transcription factor binding to IGHM enhancer 3	TCN2 TCF3 TFE3	E T G G
Transferrin Transferrin receptor Transforming growth factor, alpha Transforming growth factor, beta 2 Transforming growth factor, beta induced Transforming growth factor, beta receptor 2 Tuberous sclerosis 1 Tuberous sclerosis 2 Tubulin	TF TFRC TGFA TGFB2 TGFBI TGFBR2 TSC1 TSC2	α
Tumor susceptibility gene 101 Tumour necrosis factor (TNF) receptor associated factor 1	TSG101 TRAF1	G I
Tumour necrosis factor (TNF) receptor associated factor 2	TRAF2	ı
Tumour necrosis factor (TNF) receptor associated factor 3	TRAF3	I
Tumour necrosis factor (TNF) receptor associated factor 4	TRAF4	ı
Tumour necrosis factor (TNF) receptor associated factor 5	TRAF5	ı
Tumour necrosis factor (TNF) receptor associated factor 6	TRAF6	1
Tumour necrosis factor alpha	TNFA	1
Tumour necrosis factor alpha receptor	TNFAR	ì
Tumour necrosis factor beta	TNFB	i
Tumour necrosis factor beta receptor	TNFBR	i
Tumour protein p53	TP53, P53	Ġ
Tumour protein p63	TP63	Ğ
Tumour protein p73	TP73	Ğ
Tumour protein, translationally-controlled 1	TPT1	G
Tumour suppresssor gene DRA	DRA	1
Ubiquitin		G
Ubiquitin activating enzyme, E1		Ε
Ubiquitin B	UBB	G
Ubiquitin C	UBC	G
Ubiquitin fusion degeneration 1-like	UFD1L	G
Ubiquitin protein ligase E3A	UBE3A	Ε
Undulin 1	COL14A1	S
Uridine monophosphate kinase	UMPK	ı
Uridine monophosphate synthetase	UMPS	1
Uroporphyrinogen III synthase	UROS	E
Vimentin	VIM	
v-myc avian myelocytomatosis viral oncogene	MYC	G

homolog	•	
Von Hippel-Lindau gene	VHL	G
Werner syndrome helicase	WRN	G
Wilms tumour gene 1	WT1	G
Wilms tumour gene 2	WT2	G
Wilms tumour gene 4	WT4	G
Winged helix nude	WHN	G
Wiskott-Aldrich syndrome protein	WASP, THC	1
Xanthine dehydrogenase	XDH	Ε
X-ray repair gene	XRCC9	G
Zinc finger protein 198	ZIC198	S
Zinc finger protein HRX	ALL1	

- 351.A set of probes, said probes being antibodies or antibody fragments which interact with specific expressed proteins encoded by gene sequences of a group of genes, said probes being for detecting relevant variants (mutations and polymorphisms), e.g. nucleotide substitutions (missense, nonsense, splicing and regulatory), small deletions, small insertions, small insertion deletions, gross insertions, gross deletions, duplications, complex rearrangements and repeat variations in a target group of genes; characterised in that said group is a core group of genes consisting of substantially all of the genes defined in claim 350.
- 352.A set according to claim 350 or 351 in which a minority of said probes for listed genes are absent.
- 353.A set according to claim 350 or 351 in which a limited number of additional probes are present together with substantially all of the probes for the listed genes.
- 354.A set according to claim 350 or 351 in which a limited number of probes are replaced by probes for non-listed genes.
- 355.A set of probes for a core group of genes according to any of claims 350 to 354 in which each gene to be probed is substantially similar (greater than 85% homologous) in sequence to the respective member of the core list of genes.
- 356.A set according to any of claims 350 to 355 consisting of probes for members of a sub-group of the core group.
- 357.A set according to any preceding claim in which said probes are in the form of an array and are spatially arranged at known locations on a substrate.
- 358.A set according to any preceding claim wherein said probes are on a substrate which forms part of or consists of one or more chip plate(s), for use in a chip assay for detection of said gene variants.
- 359.A set according to any preceding claim in which said probes are mass, electrostatic or fluorescence tagged probes.
- 360.A set according to claim 357 or 358 in which said substrate is a semiconductor microchip.
- 361.A set according to any preceding claim for use in a biological assay for detection of said gene variants.

- A set according to any preceding claim for use in the measurement of 362. differential gene expression levels.
- A medical device including a set according to any preceding claim for use in 363. an assay for detection of said gene variants.
- 364.A medical device including a set according to any of claims 350 to 362 for use in an array for detection of differential gene expression levels.
- A method for use in assessing the genomic profile of a patient or individual, 365. the method comprising testing for and detecting the presence or absence of DNA or RNA encoding the relevant structural variants (as defined in claim 350) in a target group of genes by hybridising a nucleic acid-containing sample from said patient or individual to a set according to any of claims 350 and 352 to 362 and relating the probe hybridisation pattern to said variations.
- A method for use in assessing the the genomic profile of a patient or 366. individual, the method comprising testing for and detecting the presence or absence of DNA or RNA encoding the relevant structural variants (as defined in claim 351) in a target group of genes by interacting an expressed-proteincontaining sample from said patient or individual with a set of probes according to any of claims 351 to 362 and relating the probe interaction pattern to said variations.
- Use of a set or device according to any of claims 350 to 362 for the prognosis 367. and management of patients suffering from or at risk of experiencing the symptoms and consequences of injury, inflammation, infection, immunity and/or repair.
- 368. Use of a set or device according to any of claims 350 to 362 for predicting likely therapeutic response and adverse events following therapeutic intervention.
- 369. Use of a set or device according to any of claims 350 to 362 for predicting likely therapeutic response and adverse events following the intake of a specific drug.
- 370. Use of a set or device according to any of claims 350 to 362 for predicting likely patterns of symptom clusters (symptom profiles) in disease and the likelihood of subsequent, contingent, disease or symptoms.
- 371. Use of a set or device according to any of claims 350 to 362 for general health screening, occupational health purposes, healthcare planning on a population basis and other healthcare management utilisations.
- 372. Use of a set or device according to any of claims 350 to 362 for the development of new strategies of therapeutic intervention and in clinical trials.
- 373. Use of a set or device according to any of claims 350 to 362 for construction of and generation of algorithms for patient and healthcare management.
- 374. Use of a set or device according to any of claims 350 to 362 for modelling or assessing the impact of diseases or healthcare management strategies on individuals, groups, patient cohorts or populations
- 375. Use of a set or device according to any of claims 350 to 362 for modelling, assessing or exploring the theoretical impact of diseases and healthcare management strategies on individuals, groups, patient cohorts or populations.
- 376. Use of a set or device according to any of claims 350 to 362 for predicting optimum configuration/management of thereapeutic intervention.
- 377.A method according to claim 365 or 366 in which the identification of gene variants is indicative of a higher risk of experiencing the symptoms and

- consequences of injury, inflammation, infection, immunity and/or repair for the patient or individual.
- 378. A method for generating a model to assess whether a patient or individual or population or group is or are likely to develop the symptoms and consequences of injury, inflammation, infection, immunity and/or repair which method comprises:
- i) obtaining DNA or RNA or protein samples from patients or individuals diagnosed as suffering from the symptoms and consequences of injury, inflammation, infection, immunity and/or repair;
- obtaining DNA or RNA or protein samples from a control group of subjects diagnosed as not suffering from the symptoms and consequences of injury, inflammation, infection, immunity and/or repair;
- analysing the samples obtained in i) and ii) to identify the polymorphic variations encoded in the core group of genes as defined in any of claims 350 to 356;
- iv) calculating the frequencies of these alleles in the samples from i) and ii);
- v) comparing the frequencies of these alleles in i) and ii);
- vi) performing a statistical analysis on the results from v) in order to generate a model for assessing the risk of experiencing the symptoms and consequences of injury, inflammation, infection, immunity and/or repair.
- 379. A method for assessing whether a given subject will be at risk of developing symptoms, which comprises comparing said subject's genotype with a model generated by the method of claim 278.
- 380. A method according to any of claims 365, 366, 378 and 379 wherein at least one step is computer-controlled.
- 381. An assay suitable for use in a method according to any of claims 365, 366, 378 and 379; said assay comprising means for determining the presence or absence of relevant polymorphic variants of the core group of genes as defined in any of claims 350 to 356 in a biological sample.
- 382. A formatted assay technique (kit) for use in assessing the risk of a patient or individual experiencing the symptoms and consequences of injury, inflammation, infection, immunity and/or repair; said kit comprising:
 - i) means for testing for the presence or absence or DNA or RNA encoding relevant polymorphic variants of the core group of genes as defined in claim 350 or 352 to 356 in a sample of human DNA;
 - ii) reagents for use in the detection process
 - readout indicating the probability of a patient or individual experiencing the symptoms and consequences of injury, inflammation, infection, immunity and/or repair.
- 383. A formatted assay technique (kit) for use in assessing the risk of a patient or individual experiencing the symptoms and consequences of injury, inflammation, infection, immunity and/or repair; said kit comprising:
 - i) means for testing for the presence or absence of proteins encoded by the core group of genes and/or relevant polymorphic variants of the core group of genes as defined in any of claims 351 to 356 in an expressed-protein-containing human sample;
 - ii) reagents for use in the detection process

- readout indicating the probability of a patient or individual experiencing the symptoms and consequences of injury, inflammation, infection, immunity and/or repair.
- 384. A set of probes according to claim 350, wherein the probes are selected from the group consisting of oligonucleotides and polynucleotides.
- 385.A set of nucleotide probes for detecting relevant variants (mutations and polymorphisms), e.g. nucleotide substitutions (missense, nonsense, splicing and regulatory), small deletions, small insertions, small insertion deletions, gross insertions, gross deletions, duplications, complex rearrangements and repeat variations in a target group of genes which relate to dysfunction, damage or disease consequent on an aberration in the processes of development; said probes being complementary to DNA and RNA sequences of said group of genes; characterised in that said group is a core group of genes consisting of substantially all of the following:

KEY TO 'PROTEIN FUNCTION' COLUMN

- E ENZYME
- T TRANSPORT & STORAGE
- S STRUCTURAL
- I IMMUNITY
- N NERVOUS TRANSMISSION
- G GROWTH & DIFFERENTIATION

DEVELOPMENT GENE LIST	HUGO gene symbol	Protein function
17-ketosteroid reductase		N
2,4-dienoyl CoA reductase	DECR	E
3 beta hydroxysteroid dehydrogenase 2	HSD3B2	Ε
3-oxoacid CoA transferase	OXCT	Ε
6-pyruvoyltetrahydropterin synthase	PTS	Ε
Absent in melanoma 1 gene	AIM1	G
Acetoacetyl 2-CoA-thiolase	ACAT2	E
Acetyl CoA acyltransferase	ACAA	E
Acetyl CoA carboxylase alpha	ACACA	E
Acetylcholine receptor, nicotinic, alpha A1	CHRNA1	N
Acetylcholine receptor, nicotinic, alpha A2	CHRNA2	N
Acetylcholine receptor, nicotinic, alpha A3	CHRNA3	N
Acetylcholine receptor, nicotinic, alpha A4	CHRNA4	N
Acetylcholine receptor, nicotinic, alpha A5	CHRNA5	N
Acetylcholine receptor, nicotinic, alpha A6	CHRNA6	N
Acetylcholine receptor, nicotinic, alpha A7	CHRNA7	N
Acetylcholine receptor, nicotinic, beta 1	CHRNB1	N
Acetylcholine receptor, nicotinic, beta 2	CHRNB2	N
Acetylcholine receptor, nicotinic, beta 3	CHRNB3	N
Acetylcholine receptor, nicotinic, beta 4	CHRNB4	N

Acetylcholine receptor, nicotinic, epsilon Acetylcholine receptor, nicotinic, gamma Acetylcholinesterase Achromatopsia 2 Acid phosphatase 2, lysosomal Acrosin Actin, alpha, cardiac Actin, alpha, skeletal Actin, alpha, smooth, aortic	CHRNE CHRNG ACHE ACHM2 ACP2 ACR ACTC ACTA1 ACTA2	Z Z E S E G S S S
Activin Activin A receptor, type 2B	ACVR2B	G G
Activin A receptor, type 2-like kinase 1	ACVRL1	G
Acyl CoA dehydrogenase, short chain	ACADS	E
Acyl-CoA thioesterase		E
ADAM (A disintegrin and metalloproteinase) 1	ADAM1	Ε
ADAM (A disintegrin and metalloproteinase) 10		田田田田
ADAM (A disintegrin and metalloproteinase) 11		E
ADAM (A disintegrin and metalloproteinase) 12		Ε
ADAM (A disintegrin and metalloproteinase) 13		Ε
ADAM (A disintegrin and metalloproteinase) 14		E
ADAM (A disintegrin and metalloproteinase) 15		EEEE
ADAM (A disintegrin and metalloproteinase) 16		<u> </u>
ADAM (A disintegrin and metalloproteinase) 17	•	
ADAM (A disintegrin and metalloproteinase) 18		E
ADAM (A disintegrin and metalloproteinase) 19 ADAM (A disintegrin and metalloproteinase) 2		E
ADAM (A disintegrin and metalloproteinase) 2		E
3A	ADAMOA	_
ADAM (A disintegrin and metalloproteinase) 3B	ADAM3B	Ε
ADAM (A disintegrin and metalloproteinase) 4	ADAM4	Ε
ADAM (A disintegrin and metalloproteinase) 5	ADAM5	Ε
ADAM (A disintegrin and metalloproteinase) 6	ADAM6	Ε
ADAM (A disintegrin and metalloproteinase) 7	ADAM7	Ε
ADAM (A disintegrin and metalloproteinase) 8	ADAM8	E
ADAM (A disintegrin and metalloproteinase) 9	ADAM9	Ε
Adducin, alpha	ADD1	S
Adducin, beta	ADD2	S
Adenomatous polyposis coli tumour supressor	APC	G
gene		
Adenosine deaminase	ADA	Ε
Adenosine monophosphate deaminase	AMPD	E
Adenosine receptor A1	ADORA1	N
Adenosine receptor A2A	ADORA2A	Ν
Adenosine receptor A2B	ADORA2B	Ν
Adenosine receptor A3	ADORA3	N
Adenyl cyclase	ADOV4	N
Adenylate cyclase 1	ADCY1	E

Adenylate cyclase 2 Adenylate cyclase 3 Adenylate cyclase 4 Adenylate cyclase 5 Adenylate cyclase 6 Adenylate cyclase 7 Adenylate cyclase 8 Adenylate cyclase 9 Adenylate cyclase 9 Adenylosuccinate lyase ADP-ribosyltransferase Adrenergic receptor, alpha1 Adrenergic receptor, beta1 Adrenergic receptor, beta2 Adrenergic receptor, beta3 Adrenocorticotrophic hormone (ACTH)	ADCY2 ADCY3 ADCY4 ADCY5 ADCY6 ADCY7 ADCY8 ADCY9 ADSL ADPRT ADRA1 ADRA2 ADRB1 ADRB2 ADRB3 ACTHR	шшшшшшшшzzzzz G
receptor Adrenoleukodystrophy gene Alanine-glyoxylate aminotransferase Albumin, ALB Aldehyde dehydrogenase 1 Aldehyde dehydrogenase 2 Aldehyde dehydrogenase 5 Aldehyde dehydrogenase 6 Aldehyde dehydrogenase 7 Aldolase A Aldolase B Aldolase C Aldosterone receptor Alkaline phosphatase, liver/bone/kidney Alkaptonuria gene Alkylglycerone phosphate synthase Alpha 2 macroglobulin alpha tectorin alpha thalassemia gene alpha1-antitrypsin alpha2-antiplasmin alpha-actinin 2 alpha-actinin 3 alpha-arylase Alpha-fetoprotein alpha-Galactosidase A alpha-ketoglutarate dehydrogenase alpha-L-Iduronidase alpha-synuclein Amelogenin Aminomethyltransferase	ALD AGXT ALB ALDH10 ALDH2 ALDH5 ALDH6 ALDH7 ALDOA ALDOB ALDOC MLR ALPL AKU AGPS A2M TECTA ATRX PI PLI ACTN2 ACTN3 AFP GLA IDUA SNCA AMELX AMT	шштшшшшшшшсгош-схшшссшшшшхош

Aminopeptidase P	XPNPEP2	Ε
Amphiregulin	AREG	G
Amylo-1,6-glucosidase	AGL	Ε
Amyloid beta (A4) precursor protein-binding,	APBB1	Ν
APBB1		
Amyloid beta A4 precursor protein	APP	Ν
Amyloid beta A4 precursor-like protein	APLP	Ν
Androgen binding protein	ABP	T
Androgen receptor	AR	G
Angiopoietin 1	ANGPT1	G
Angiopoietin 2	ANGPT2	G
Angiotensin converting enzyme	ACE, DCP1	Ε
Angiotensinogen	AGT	Ε
Ankyrin 1	ANK1	S
Ankyrin 2	ANK2	S
Ankyrin 3	ANK3	S
Antidiuretic hormone receptor	ADHR	T
Anti-Mullerian hormone	AMH	G
Anti-Mullerian hormone type 2 receptor	AMHR2	G
Antithrombin III	AT3	Ε
AP-2, alpha	TFAP2A	G
AP-2, beta	TFAP2B	G
AP-2, gamma	TFAP2C	Ğ
Apaf-1		S
Apical protein, xenopus laevis-like	APXL	Ğ
Apolipoprotein A 4	APOA4	T
Apolipoprotein A I	APOA1	T
Apolipoprotein A II	APOA2	Ť
Apolipoprotein B	APOB	Ť
Apolipoprotein C1	APOC1	Т
Apolipoprotein C2	APOC2	Т
Apolipoprotein C3	APOC3	Ť
Apolipoprotein D	APOD	T
Apolipoprotein E	APOE	T
Apolipoprotein H	APOH .	T
Apopain	CPP32	Ġ
Apoptosis antigen 1	APT1	Ī
Apoptosis antigen ligand 1	APT1LG1	i
Apoptosis-inducing factor	AIF	i
Apurinic endonuclease	APE	E
Archaete-scute homolog 1	ASH1	G
Archaete-scute homolog 2	ASH2	Ğ
Arginosuccinate synthetase	ASS	E
Arrestin	SAG	s
Aryl hydrocarbon receptor	AHR	T
Aryl hydrocarbon receptor nuclear translocator		Ť
Arylsulfatase A	ARSA	Ė
Arylsulfatase B	ARSB	E
-		_

Arylsulfatase C	ARSC1	Ε
Arylsulfatase D	ARSD	Ε
Arylsulfatase E	ARSE	Ε
Arylsulfatase F	ARSF	E
Aspartate transaminase		T
Aspartate transcarbamoylase		Ė
·	ASPA	
Aspartoacylase		E
Aspartylglucosaminidase	AGA	Ε
Astrotactin	ASTN	G
Ataxia telangiectasia complementation group D		G
Ataxia telangiectasia gene, AT	ATM	G
Ataxin 1	SCA1	G
Ataxin 2	SCA2	G
Ataxin 3	MJD	G
ATP-binding cassette transporter 7	ABC7	1
Atrial natriuretic peptide	ANP	G
Atrial natriuretic peptide receptor A	NPR1	G
Atrial natriuretic peptide receptor B	NPR2	Ğ
Atrial natriuretic peptide receptor C	NPR3	G
	DRPLA	G
Atrophin 1	DIG EX	-
Attractin	AIRE	1
Autoimmune regulator, AIRE		1
Azoospermia factor 1	AZF1	G
Bagpipe homeobox, drosophila homolog of, 1	BAPX1	G
B-cell CLL/lymphoma 1	BCL1	[
B-cell CLL/lymphoma 10	BCL10	1
B-cell CLL/lymphoma 3	BCL3	ı
B-cell CLL/lymphoma 4	BCL4	1
B-cell CLL/lymphoma 5	BCL5	ı
B-cell CLL/lymphoma 6	BCL6	l
B-ceil CLL/lymphoma 7	BCL7	1
B-cell CLL/lymphoma 8	BCL8	- 1
B-cell CLL/lymphoma 9	BCL9	l
BCL2-associated X protein	BAX	G
BCL2-related protein A1	BCL2A1	G
Beckwith-Wiedemann region 1A	BWR1A	G
Bestrophin	VMD2	Т
beta 2 microglobulin	B2M	i
beta-endorphin receptor		N
beta-Glucuronidase	GUSB	E
	G03B	
beta-N-acetylhexosaminidase, A		EEE
beta-N-acetylhexosaminidase, B		
Bilirubin UDP-glucuronosyltransferase	5.14.1	ב
Bleomycin hydrolase	BLMH	E
Bloom syndrome protein	BLM	G
Blue cone pigment	BCP	S
Bone morphogenetic protein, BMP1	BMP1	G
Bone morphogenetic protein, BMP2	BMP2	G

Bone morphogenetic protein, BMP3 Bone morphogenetic protein, BMP4 Bone morphogenetic protein, BMP5 Bone morphogenetic protein, BMP6 Bone morphogenetic protein, BMP7 Bone morphogenetic protein, BMP8 Brain derived neurotrophic factor Brain derived neurotrophic factor (BDNF) receptor	BMP3 BMP4 BMP5 BMP6 BMP7 BMP8 BDNF BDNFR	00000000
Branched chain aminotransferase 1, cytosolic Branched chain aminotransferase 2, mitochondrial	BCAT1 BCAT2	E
BRCA1-associated RING domain gene 1 Breakpoint cluster region Breast cancer 1 Breast cancer 2 Breast cancer, ductal, 1 Breast cancer, ductal, 2 Bruton agammaglobulinaemia tyrosine kinase Butyrylcholinesterase C3 convertase	BARD1 BCR BRCA1 BRCA2 BRCD1 BRCD2 BTK BCHE	0000000EE
Ca(2+) transporting ATPase, fast twitch Ca(2+) transporting ATPase, slow twitch Cadherin E Cadherin EP	ATP2A1 ATP2A2 CDH1	TTGG
Cadherin N Cadherin P Calbindin 1 Calbindin D9K Calcium channel, voltage-dependent, alpha 1F	CDH2 CDH3 CALB1 CALB3 CACNA1F	GGGGN
subunit Calcium channel, voltage-dependent, Alpha- 1B (CACNL1A5)	CACNA1B	Ν
Calcium channel, voltage-dependent, Alpha- 1C	CACNA1C	Ν
Calcium channel, voltage-dependent, Alpha- 1D	CACNA1D	Ν
Calcium channel, voltage-dependent, Alpha- 1E (CACNL1A6)	CACNA1E	Ν
Calcium channel, voltage-dependent, Alpha- 2/delta	CACNA2	Ν
Calcium channel, voltage-dependent, Beta 1 Calcium channel, voltage-dependent, Beta 3 Calcium channel, voltage-dependent, L type,	CACNB1 CACNB3 CACNA1S	2 2 2
alpha 1S subunit Calcium channel, voltage-dependent, Neuronal, Gamma	CACNG2	N
Calcium channel, voltage-dependent, P/Q	CACNA1A	Ν

type, alpha 1A subunit Calcium channel, voltage-dependent, T-type Calcium sensing receptor Calmodulin 1 Calmodulin 2 Calmodulin 3 Calmodulin dependant kinase Calmodulin-dependant protein kinase II Calnexin Calpain Canalicular multispecific organic anion transporter	CASR CALM1 CALM2 CALM3 CAMK2A CANX CAPN, CAPN3 CMOAT	N T G G G T G G E T
Carbamoylphosphate synthetase 1 Carbamoylphosphate synthetase 2 Carbonic anhydrase 3 Carbonic anhydrase 4 Carbonic anhydrase, alpha Carbonic anhydrase, beta Cardiac-specific homeobox, CSX Carnitine acetyltransferase Carnitine acylcarnitine translocase Carnitine transporter protein Cartilage oligomeric matrix protein	CPS1 CPS2 CA3 CA4 CA1 CA2 CSX CRAT CACT CDSP, SCD COMP, EDM1,	
Cartilage-hair hypoplasia gene Caspase 1 Caspase 10 Caspase 2 Caspase 3 Caspase 4 Caspase 5 Caspase 6 Caspase 7 Caspase 8 Caspase 9 Catechol-O-methyltransferase Catenin, alpha Catenin, damma	PSACH CHH CASP1 CASP10 CASP2 CASP3 CASP4 CASP5 CASP6 CASP7 CASP8 CASP8 CASP9 COMT CTNNA1 CTNNB1	X G G G G G G G G G G G G
Catenin, gamma Cathepsin K Caveolin 3 CD1 CD44 Cdc 25 phosphatase Cdc2 CDX1 CEA Cell adhesion molecule, intercellular, ICAM	CTSK CAV3 CD1 CD44 CDC2	G H H G G G G G

Cell adhesion molecule, leukocyte-endothelial, LECAM (CD62)	LECAM1	G
	LCAM	G
0011 0011011111111111111111111111111111	NCAM1	Ğ
	NCAM120	Ğ
	NCAM2	G
0011 0011011111111111111111111111111111	PECAM1	G
PECAM	LOAMI	G
Cell adhesion molecule, vascular, VCAM	VCAM1	G
	CEB	Ν
	ERBB1	G
c-erbB2	ERBB2	G
	ERBB3	G
	ERBB4	G
0 0.22 .	CLN2	N
Soloid iipoidosiii osio iiisaa aa	CLN3	N
CO.C.L IIPCICCOMICCIO	CLN4	N
Soloid iiboitassii istaa iitaa i	CLN5	N
Colore in Colores in Colores	CLN6	N
	CHS1	T
	MCAF	1
01101110111110 11101 II	CCR2	i
Chemokine receptor CCR3	CCR3	i
	CCR5	i
Chemokine receptor CXCR1	CXCR1	i
· ·	CXCR2	i
Chemokine receptor CXCR2	CXCR4	1
Chemokine receptor CXCR4	CLCN5	s
Chloride channel 5	FIC1	G
Cholestasis, progressive familial intrahepatic 1 gene	rioi	G
Cholesterol ester transfer protein	CETP	Т
Choline acetyltransferase	CHAT	Ε
Choroideremia gene	CHM	S
Chromogranin A	CHGA	G
Ciliary neurotrophic factor (CNTF)	CNTF	G
Ciliary neurotrophic factor (CNTF) receptor	CNTFR	G
c-kit receptor tyrosine kinase		G
Clathrin		Т
Cleavage signal-1 protein	CS1	G
Cleft palate gene	CPX	G
Clusterin	CLU	Ğ
CoA transferase		E
Cochlin	COCH	ī
Cockayne syndrome gene, CKN1	CKN1	Ġ
Collagen I alpha 1	COL1A1	S
Collagen I alpha 2	COL1A2	S S
Collagen II alpha 1	COL2A1	9
Collagen III alpha 1	COL3A1	S S
Collagett ill alpita 1	O LOTT	J

Collagen IV alpha 1 Collagen IV alpha 2 Collagen IV alpha 3 Collagen IV alpha 4 Collagen IV alpha 5 Collagen IV alpha 6 Collagen IX alpha 2 Collagen IX alpha 3 Collagen receptor Collagen V alpha 1 Collagen V alpha 1 Collagen VI alpha 2 Collagen VI alpha 2 Collagen VI alpha 3 Collagen VI alpha 3 Collagen VI alpha 1 Collagen X alpha 1 Collagen X alpha 1 Collagen X alpha 1 Collagen X alpha 1 Collagen X alpha 1 Collagen X I alpha 2 Collagen XI alpha 2 Collagen XI alpha 1 Collagen XII alpha 1 Collagen ic-like tail subunit of asymmetric	COL4A1 COL4A2 COL4A3 COL4A4 COL4A5 COL4A6 COL9A2, EDM2 COL9A3 COLR COL5A1 COL5A2 COL6A1 COL6A2 COL6A3 COL7A1 COL10A1 COL11A1 COL11A1 COL11A2 COL17A1 COL17A1	3555
acetylcholinesterase Collapsin Colony-stimulating factor 1 Colony-stimulating factor 1 receptor Colony-stimulating factor 2 Colony-stimulating factor 2 alpha receptor Colony-stimulating factor 2 beta receptor Colony-stimulating factor 3 Colony-stimulating factor 3 receptor Complex V Cone-rod homeobox-containing gene Contactin Core-binding factor, alpha 1 Core-binding factor, alpha 2 Core-binding factor, beta Corticotrophin-releasing hormone Corticotrophin-releasing hormone Corticotrophin-releasing hormone receptor Creatine kinase – B and m Creb binding protein Cryptochrome 1 Cryptochrome 2 Crystallin, alpha B Crystallin, alpha B Crystallin, pamma A c-src tyrosine kinase Cu2+ transporting ATPase alpha polypeptide Cu2+ transporting ATPase beta polypeptide	CSF1 CSF1R CSF2 CSF2RA CSF2RB CSF3 CSF3R MTATP6 CRX CNTN1 CBFA1 CBFA2 CBFB CRH CRHR1 CKBE CREBBP CRY1 CRY2 CRYAA CRYAB CRYAB CRYBB2 CRYGA CSK ATP7A ATP7B	0000000E0000TTE000000EE

Cubilin	CUBN	T
Cyclic AMP response element binding protein	CREB	G
Cyclic AMP response element modulator	CREM	G
Cyclic AMP-dependent protein kinase	PKA	E
Cyclic nucleotide gated channel alpha 1,	CNGA1	N
	CNOAT	14
CNGA1	CNGA3	N1
Cyclic nucleotide gated channel alpha 3,	CNGAS	N
CNGA3	55545	_
Cyclic nucleotide phosphodiesterase 1B	PDE1B	Ε
Cyclic nucleotide phosphodiesterase 1B1	PDE1B1	Ε
Cyclic nucleotide phosphodiesterase 2A3	PDE2A3	Ε
Cyclic nucleotide phosphodiesterase 3A	PDE3A	Ε
Cyclic nucleotide phosphodiesterase 3B	PDE3B	Ε
Cyclic nucleotide phosphodiesterase 4A	PDE4A	Ε
Cyclic nucleotide phosphodiesterase 4C	PDE4C	Ε
Cyclic nucleotide phosphodiesterase 5A	PDE5A	田田田
Cyclic nucleotide phosphodiesterase 6A	PDE6A	Ε
Cyclic nucleotide phosphodiesterase 6B	PDE6B	Ε
Cyclic nucleotide phosphodiesterase 7	PDE7	Ε
Cyclic nucleotide phosphodiesterase 8	PDE8	Ε
Cyclic nucleotide phosphodiesterase 9A	PDE9A	Ε
Cyclin A	CCNA	G
Cyclin B	CCNB	G
Cyclin C	CCNC	G
Cyclin D	CCND1	Ğ
Cyclin E	CCNE	G
Cyclin F	CCNF	G
Cyclin-dependent kinase 1	CDK1	G
Cyclin-dependent kinase 10	CDK10	Ğ
Cyclin-dependent kinase 2	CDK2	G
Cyclin-dependent kinase 2	CDK3	G
•	CDK4	G
Cyclin-dependent kinase 4	CDK5	G
Cyclin-dependent kinase 5	CDK6	G
Cyclin-dependent kinase 6	CDK7	G
Cyclin-dependent kinase 7	CDK8	G
Cyclin-dependent kinase 8		G
Cyclin-dependent kinase 9	CDK9	G
Cyclin-dependent kinase inhibitor 1A (P21,	CDKN1A	G
CIP1)	ODIANAD	_
Cyclin-dependent kinase inhibitor 1B (P27,	CDKN1B	G
KIP1)	0510110	_
Cyclin-dependent kinase inhibitor 1C (P57,	CDKN1C	G
KIP2)		_
Cyclin-dependent kinase inhibitor 2A (p16)	CDKN2A	G
Cyclin-dependent kinase inhibitor 3	CDKN3	G
Cyclooxygenase 1	COX1	Ε
Cyclooxygenase 2	COX2	Ε
CYP11A1	CYP11A1	Ε

CYP11B1	CYP11B1	Ε
CYP11B2	CYP11B2	E
CYP17	CYP17	E
CYP19	CYP19	E
CYP1A1	CYP1A1	E
CYP1A2	CYP1A2	E
CYP1B1	CYP1B1	Ē
CYP21	CYP21	E
CYP24	CYP24	E
CYP27	CYP27	E
CYP27B1	PDDR	E
CYP2A1	CYP2A1	E
CYP2A13	CYP2A13	E
CYP2A3	CYP2A3	Ε
CYP2A6V2	CYP2A6V2	
CYP2A7	CYP2A7	E
CYP2B6	CYP2B6	E
CYP2C18	CYP2C18	E
CYP2C19	CYP2C16 CYP2C19	Ε
CYP2C8		E
	CYP2C8	E
CYP2C9	CYP2C9	E
CYP2D6	CYP2D6	E
CYP2E1	CYP2E1	E
CYP2F1	CYP2F1	Ε
CYP2J2	CYP2J2	E
CYP3A3	CYP3A3	E
CYP3A4	CYP3A4	E
CYP3A5	CYP3A5	E
CYP3A7	CYP3A7	Ε
CYP4A11	CYP4A11	E
CYP4B1	CYP4B1	Ε
CYP4F2	CYP4F2	Ε
CYP4F3	CYP4F3	Ε
CYP51	CYP51	E
CYP5A1	CYP5A1	Ε
CYP7A	CYP7A	Ε
CYP8	CYP8	Ε
Cystathionase	CTH	E
Cystathione beta synthase	CBS	E
Cystic fibrosis transmembrane conductance	CFTR	Ν
regulator, CFTR		
Cystinosin	CTNS	T
Cytidine deaminase	CDA	Ε
Cytochrome b-245 alpha	CYBA	Ε
Cytochrome b-245 beta	CYBB	Ε
Cytochrome b-5	CYB5	E
DAX1 nuclear receptor	DAX1	ŀ
Deafness autosomal dominant 5	DFNA5	Ν

Defender against cell death 1 Deleted in azoospermia Deleted in colorectal carcinoma Deleted in malignant brain tumours 1	DAD1 DAZ DCC DMBT1 ALAD	NGGGGEE
Delta-7-dehydrocholesterol reductase Dentin sialophosphoprotein Deoxyuridine triphosphatase; dUTPase Desert hedgehog, dhh	DHCR7 DSPP	LEGEG
DHEA sulfotransferase Diaphanous 1 Diaphanous 2 Diastrophic dysplasia sulfate transporter	STD DIAPH1 DIAPH2	H Z Z H
Dihydrolipoamide branched chain transacylase Dihydrolipoamide dehydrogenase Dihydrolipoyl dehydrogenase 2 Dihydrolipoyl transacetylase	DLD PDHA PDHA	N N E E
Dihydroorotase Dihydroxyacetonephosphate acyltransferase Disrupted meiotic cDNA 1, homolog Distal-less homeobox 1	DHAPAT DMC1 DLX1	EEGG
Distal-less homeobox 2 Distal-less homeobox 3 Distal-less homeobox 4 Distal-less homeobox 5	DLX3 DLX4 DLX5	GGGG
DNA damage binding protein, DDB2 DNA directed polymerase, alpha	DDB1 DDB2	GSSEL
DNA glycosylases DNA helicases DNA Ligase 1 DNA methyltransferase DNA polymerase 1	LIG1 DNMT	田田田田田
DNA polymerase 2 DNA polymerase 3 DNA primase DNA-damage-inducible transcript 3	DDIT3	EEES
DNA-damage-inducible transcript 3 DNA-dependant RNA polymerase DOPA decarboxylase Doublecortin, DCX Duffy blood group Dynamin	DDC DCX FY DNM1	SEESTG
Dynein Dyskerin Dystonia 1	DKC1 DYT1	G S S

Dystonia 3 Dystonia 6 Dystonia 7 Dystonia 9 Dystrophia myotonica Dystrophia myotonica, atypical Dystrophin Dystrophin-associated glycoprotein 35kD, SCGD	DYT3 DYT6 DYT7 CSE DM, DMPK DM2 DMD SGCD	SSSSEESS
Dystrophin-associated glycoprotein 35kD, SGSG	SGCG	S
Dystrophin-associated glycoprotein 43kD Dystrophin-associated glycoprotein 50kD E74-like factor 1, ELF1 EB1	SGCB SGCA ELF1	S S G G
Ectodermal Dysplasia 1 gene Electron-transfering-flavoprotein alpha Electron-transfering-flavoprotein beta Electron-transferring flavoprotein dehydrogenase	ED1 ETFA ETFB ETFDH	S T T E
dehydrogenase Empty spiracles (drosophila) homologue 1 Empty spiracles (drosophila) homologue 2 Endobrevin Endocardial fibroelastosis 2 gene Endometrial bleeding-associated factor Endothelin 1 Endothelin 2 Endothelin 3 Endothelin converting enzyme Endothelin receptor type A Endothelin receptor type B Engrailed-1 Engrailed-2 Enolase Enoyl CoA isomerase Enterokinase Ephrin receptor tyrosine kinase A Ephrin-A Ephrin-B	EMX1 EMX2 VAMP8 EFE2 EBAF EDN1 EDN2 EDN3 ECE1 EDNRA EDNRB EN1 EN2 EN01 PRSS7, ENTK EPHA EPHB EFNA EFNB	
Epidermal growth factor Epidermal growth factor receptor Epilepsy, benign neonatal 4 gene Epilepsy, female restricted Epilepsy, progressive myoclonic 2 gene Erythrocyte membrane protein band 4.1 Erythrocyte membrane protein band 4.2 Erythrocyte membrane protein band 7.2	EFNB EGF EGFR ICCA EFMR EPM2A EPB41 EPB42 EPB72	

Erythroid kruppel-like factor Erythropoietin Erythropoietin receptor Estrogen receptor Eukaryotic initiation translation factor EWS RNA-binding protein Excision repair complementation group 1	EKLF EPO EPOR ESR EIF4E EWSR1 ERCC1	G I I G G G E
Excision repair complementation group 2	ERCC2	Ε
protein Excision repair complementation group 2 protein	ERCC3	Ε
Excision repair complementation group 4 protein	ERCC4	E
Excision repair complementation group 6 protein	ERCC6	Ε
Exostosin 1 Exostosin 2 Exostosin 3 Eyes absent 1 Eyes absent 2 Eyes absent 3 Faciogenital dysplasia Factor 1 (No. one)	EXT1 EXT2 EXT3 EYA1 EYA2 EYA3 FGD1, FGDY F1	S S S G G G T I
Factor B, properdin Factor D Factor H Factor I (letter I) Factor III Factor IX Factor V Factor VIII Factor VIII Factor XII Factor XI Factor XII Factor XIII Factor AIII Factor	FCGR2A	
Fc fragment of IgG, low affinity Illa, receptor fo (CD16)	r FCGR3A	G
Fc receptor Fertilin protein Fibrillin 1	FTNB FBN1	l G G

Fibrillin 2	FBN2	_
Fibroblast growth factor	FGF1	G
Fibroblast growth factor receptor 1	FGFR1	G
Fibroblast growth factor receptor 2	FGFR2	G
Fibroblast growth factor receptor 3		G
· ·	FGFR3	G
Fibronectin precursor	FN1	G
Flavin-containing monooxygenase 1	FMO1	E
Flavin-containing monooxygenase 2	FMO2	Ε
Flavin-containing monooxygenase 3	FMO3	Ε
Flavin-containing monooxygenase 4	FMO4	Ε
Flightless-II, Drosophila homolog of	FLII	G
Folic acid receptor	FOLR	G
Follicle stimulating hormone receptor	FSHR, ODG1	G
Follicle stimulating hormone, FSH	FSHB	G
Follicular lymphoma variant translocation 1	FVT1	1
Follistatin		G
Forkhead rhabdomyosarcoma gene	FKHR	G
Forkhead transcription factor 10	FKHL10	G
Forkhead transcription factor 14	FKHL14	G
Forkhead transcription factor 7	FKHL7	G
Formiminotransferase		Ε
Fragile site, folic acid type, rare, fra(X) A	FRAXA	Ν
Fragile site, folic acid type, rare, fra(X) E	FRAXE	Ν
Fragile site, folic acid type, rare, fra(X) F	FRAXF	Ν
Frataxin	FRDA	G
Fringe secreted protein, lunatic	LFNG	G
Fringe secreted protein, manic	MFNG	Ğ
Fringe secreted protein, radical	RFNG	Ğ
Fructose-1,6-diphosphatase	FBP1	Ε
Fucosyltransferase 6	FUT6	Ŧ
Fukuyama type congenital muscular dystrophy	FCMD	Ġ
Fumarase	FH	Ē
Fumarylacetoacetase	FAH	Ē
G/T mismatch binding protein	GTBP, MSH6	G
GABA receptor, alpha 1	GABRA1	N
GABA receptor, alpha 2	GABRA2	N
GABA receptor, alpha 3	GABRA3	N
GABA receptor, alpha 4	GABRA4	N
GABA receptor, alpha 5	GABRA5	N
GABA receptor, alpha 6	GABRA6	N
GABA receptor, beta 1	GABRB1	N
GABA receptor, beta 2	GABRB2	N
GABA receptor, beta 3	GABRB3	N
GABA receptor, gamma 1	GABRG1	
GABA receptor, gamma 2	GABRG2	N
GABA receptor, gamma 3		N
GABA transaminase	GABRG3	N
	ABAT	E
Gadd45 (growth arrest & DNA-damage-inducible	ie protein)	Ε

Galactocerebrosidase Galactokinase Galactose 1-phosphate uridyl-transferase Galactosyltransferase 1 Galactosyltransferase, alpha 1,3 Galactosyltransferase, beta 3 Galanin Galanin receptor Gamma-glutamyl carboxylase Gap junction protein alpha 1 Gap junction protein alpha 3 Gap junction protein alpha 8 Gap junction protein beta 1 Gap junction protein beta 2 Gap junction protein beta 3 Gastric Intrinsic factor, GIF Gastrin Gastrin releasing peptide Gastrointestinal tumor-associated antigen 1 Gastrulation brain homeobox 2 GDP dissociation inhibitor 1 Gelsolin Geniospasm 1 Gephyrin Glial-cell derived neurotrophic factor (GDNF)	GALC GALK1 GALT GT1 GGTA1 B3GALT GAL GALNR1 GGCX GJA1 GJA3 GJA8 GJB1 GJB2 GJB3 GIF GAS GRP GA733 GBX2 GDI1 GSN GSM1	EEEGGGNNTTTTTTEGT-GGGGNN
receptor Glial-cell derived neurotrophic factor, GDNF Glioma chloride ion channel, GCC	GDNF	N G
Glucagon receptor Glucagon-like peptide receptor 1	GCGR GLP1R	G G
Glucocorticoid receptor	GRL	G
Glucose-6-phosphatase translocase	G6PT1	Ē
Glucosidase, acid alpha	GAA	Ε
Glucosidase, acid beta	GBA	Ε
Glutamate decarboxylase, GAD	GAD1	Ε
Glutamate-cysteine ligase	GLCLC	E
Glutathione	GSH	T
Glutathione peroxidase, GPX1	GPX1	Ε
Glutathione peroxidase, GPX2	GPX2	Ε
Glutathione reductase, GSR	GSR	Ε
Glutathione S-transferase mu 1, GSTM1 Glutathione S-transferase mu 4, GSTM4	GSTM1	E
Glutathione S-transferase theta 1, GSTT1	CSTT1	E
Glutathione S-transferase theta 1, GSTT2	GSTT1	E
Glutathione S-transferase, GSTP1	GSTP1	E
Glutathione S-transferase, GSTZ1	GSTZ1	E
Glutathione synthetase	GSS	E
Glyceraldehyde-3-phosphate dehydrogenase,	GAPDH	E E
Ciyocialuciiyuc-3-pilospilate deffydfogenase,	GALDU	

GAPDH	•	
Glycerol kinase	GK	Ε
Glycinamide ribonucleotide (GAR)	GART	Ē
transformylase		
Glycine dehydrogenase	GLDC	Ε
Glycine receptor, alpha	GLRA2	N
Glycine receptor, beta	·	N
Glycogen branching enzyme	GBE1	E
Glycogen phosphorylase	PYGL	Ε
Glycogen synthase 1 (muscle)	GLYS1	E
Glycogen synthase 2 (liver)	GYS2	Ε
Glycosyltransferases, ABO blood group	ABO	E
Glypican 3	GPC3, SDYS	G
GM2 ganglioside activator protein, GM2A	GM2A	E
Gonadotropin releasing hormone	GNRH	G
Gonadotropin releasing hormone receptor	GNRHR	G
Goosecoid GSC		G
Green cone pigment	GCP	S
Growth arrest-specific homeobox	GAX	G
Growth factor receptor-bound protein 2	GRB2	G
Growth hormone 1	GH1	G
Growth hormone 2 (placental)	GH2	G
Growth hormone receptor	GHR	G
Growth hormone releasing hormone (GHRH)	GHRH	G
Growth hormone releasing hormone receptor	GHRHR	G
Growth/differentiation factor 5	GDF5	G
Growth-regulated protein precursor, GRO	GRO	ı
GTP cylcohydrolase 1	GCH1	G
GTPase-activating protein, GAP	RASA1	G
Guanidinoacetate N-methyltransferase	GAMT	E
Guanine nucleotide-binding protein, alpha	GNAO1	Ν
activating activity polypeptide, GNAO	22141	
Guanine nucleotide-binding protein, alpha	GNAI1	Ν
inhibiting activity polypeptide 1, GNAI1	ONIAIO	
Guanine nucleotide-binding protein, alpha	GNAI2	Ν
inhibiting activity polypeptide 2, GNAI2	CNIAIO	
Guanine nucleotide-binding protein, alpha	GNAI3	Ν
inhibiting activity polypeptide 3, GNAI3	CNIACI	N 1
Guanine nucleotide-binding protein, alpha	GNAS1	Ν
stimulating activity polypeptide, GNAS1 Guanine nucleotide-binding protein, alpha	GNAS2	N.I.
stimulating activity polypeptide, GNAS2	GNA32	Ν
Guanine nucleotide-binding protein, alpha	GNAS3	N
stimulating activity polypeptide, GNAS3	GNASS	IN
Guanine nucleotide-binding protein, alpha	GNAS4	N
stimulating activity polypeptide, GNAS4	511A54	ıV
Guanine nucleotide-binding protein, alpha	GNAT1	N
transducing activity polypeptide, GNAT1		
3, E-DE-E		

Guanine nucleotide-binding protein, alpha transducing activity polypeptide, GNAT2	GNAT2	N
Guanine nucleotide-binding protein, beta polypeptide 3	GNB3	Ν
Guanine nucleotide-binding protein, gamma polypeptide 5	GNG5	N
Guanine nucleotide-binding protein, q polypeptide	GNAQ	Ν
Guanylate cyclase 2D, membrane (retinaspecific)	GUCY2D	Ε
Guanylate cyclase activator 1A (retina) Guanylate kinase	GUCA1A	E
Gustducin, alpha (taste-specific G protein) Haeme regulated inhibitor kinase	GDCA	N E
Haemoglobin epsilon Hairless	HR	T
Haptoglobin, alpha 1	HPA1	G
Haptoglobin, alpha 2	HPA2	i
Haptoglobin, beta	HPB	i
Heat shock protein, HSP60		Ī
Heat shock protein, HSP70		1
Heat shock protein, HSP90		1
Heat shock protein, HSPA1		I
Heat shock protein, HSPA2		1
Hela tumor suppression gene	HTS1	G
Hemochromatosis	HFE	T
Hemopexin Heparan sulfamidase	HPX	١
Heparin binding epidermal growth factor	HBEGF	E G
Hepatic nuclear factor-3-beta	HNF3B	E
Hepatic nuclear factor-4-alpha	HNF4A	E
Hepatitis B virus integration site 1	HVBS1	ī
Hepatitis B virus integration site 2	HVBS6	i
Hepatocyte growth factor	HGF	Ġ
Hexosaminidase A	HEXA,TSD	Ε
Hexosaminidase B	HEXB	Ε
High mobility group protein 1	HMG1	G
High mobility group protein 2	HMG2	G
High mobility group protein C	HMGIC	G
High mobility group protein Y	HMGIY	G
Histone family H1	H1	G
Histone family H2	H2	G
Histone family H3	H3	G
Histone family H4	H4	G
HLA-B associated transcript 1 HLH transcription factor HAND1	BAT1 HAND1	l G
HLH transcription factor HAND2	HAND2	G G
HMG-CoA lyase	HMGCL	E
•		_

HMG-CoA reductase	HMGCR	Ε
HMG-CoA synthase	HMGCS2	Ē
Holocarboxylase synthetase	HLCS	E
Holoprosencephaly 1	HPE1	G
Holoprosencephaly 2	HPE2	G
Holoprosencephaly 3	HPE3	G
Holoprosencephaly 4	HPE4	
Homeobox (HOX) gene A1	HOXA1	G
Homeobox (HOX) gene A10	HOXA10	G
Homeobox (HOX) gene A11	HOXA11	G
Homeobox (HOX) gene A12	HOXA12	G
Homeobox (HOX) gene A13	HOXA13	G
Homeobox (HOX) gene A2	HOXA2	G
Homeobox (HOX) gene A3	HOXA3	G
Homeobox (HOX) gene A4	HOXA4	G
Homeobox (HOX) gene A5		G
Homeobox (HOX) gene A6	HOXA5	G
Homeobox (HOX) gene A7	HOXA6	G
Homeobox (HOX) gene A8	HOXA7	G
Homeobox (HOX) gene A9	HOXA8	G
Homeobox (HOX) gene B1	HOXA9	. G
• • • •	HOXB1	G
Homeobox (HOX) gene B2	HOXB2	G
Homeobox (HOX) gene B3	HOXB3	G
Homeobox (HOX) gene B4	HOXB4	G
Homeobox (HOX) gene B5	HOXB5	G
Homeobox (HOX) gene B6	HOXB6	G
Homeobox (HOX) gene B7	HOXB7	G
Homeobox (HOX) gene B8	HOXB8	G
Homeobox (HOX) gene B9	HOXB9	G
Homeobox (HOX) gene C13	HOXC13	G
Homeobox (HOX) gene C4	HOXC4	G
Homeobox (HOX) gene C8	HOXC8	G
Homeobox (HOX) gene C9	HOXC9	G
Homeobox (HOX) gene D1	HOXD1	G
Homeobox (HOX) gene D10	HOXD10	G
Homeobox (HOX) gene D12	HOXD12	G
Homeobox (HOX) gene D13	HOXD13	G
Homeobox (HOX) gene D3	HOXD3	G
Homeobox (HOX) gene D4	HOXD4	G
Homeobox (HOX) gene D8	HOXD8	G
Homeobox (HOX) gene D9	HOXD9	G
Homeobox 11	HOX11	G
Homeobox HB24	HLX1	G
Homeobox HB9	HLXB9	G
Homeobox, PROX1	PROX1	G
HSSB, replication protein	ATOL14	E
Human atonal gene	ATOH1	G
Human chorionic gonadtrophin, hCG	CG	G

Human placental lactogen Huntingtin Hypoxanthine-guanine phosphoribosyltransferase, HGPRT	CSH1 HD HPRT	G T E
Hypoxia inducible factor 1 Hypoxia inducible factor 2 IC7 A and B	HIF1A	E
lduronate 2 sulphatase	IDS	Ε
Ikaros gene	IKAROS	G
Immunoglobulin alpha (IgA)	IGHA	ı
Immunoglobulin delta (IgD)	IGHD	1
Immunoglobulin E (IgE) reponsiveness gene	IGER	-
Immunoglobulin E (IgE) serum concentration	IGES	ı
regulator gene		
Immunoglobulin epsilon (IgE)	IGHE	1
Immunoglobulin gamma (IgG) 2	IGHG2	1
Immunoglobulin heavy mu chain	IGHM	i
Immunoglobulin J polypeptide	IGJ	1
Immunoglobulin kappa constant region	IGKC	i
Immunoglobulin kappa variable region	IGKV	1
Indian hedgehog, ihh	IHH	G
Inhibin, alpha	INHA	G
Inhibin, beta A	INHBA	G
Inhibin, beta B	INHBB	G
Inhibin, beta C	INHBC	G
Inosine monophosphate dehydrogenase, IMPDH		Ε
Inositol 1,4,5-triphosphate receptor 1	ITDD1	_
Inositol 1,4,5-triphosphate receptor 3	ITPR1 ITPR3	G
Insulin	INS	G
Insulin promotor factor 1	IPF1	G G
Insulin receptor	INSR	G
Insulin receptor substrate-1	IRS1	G
Insulin-like growth factor 1	IGF1	G
Insulin-like growth factor 1 receptor	IGF1R	G
Insulin-like growth factor 2	IGF2	G
Insulin-like growth factor 2 receptor	IGF2R	G
Integrin beta 1	ITGB1	G
Integrin beta 2	ITGB2	Ğ
Integrin beta 3	ITGB3	Ğ
Integrin beta 4	ITGB4	Ğ
Integrin beta 5	ITGB5	G
Integrin beta 6	ITGB6	G
Integrin beta 7		G
	ITGB7	G
Integrin, alpha 1	ITGB7 ITGA1	G
Integrin, alpha 2		
-	ITGA1	G

	.=	
Integrin, alpha 5	ITGA5	G
Integrin, alpha 6	ITGA6	G
Integrin, alpha 7	ITGA7	G
Integrin, alpha 8	ITGA8	G
Integrin, alpha 9	ITGA9	G
Integrin, alpha M	ITGAM	G
Integrin, alpha X	ITGAX	G
Inter-alpha-trypsin inhibitor, IATI		E
Intercellular adhesion molecule 1	ICAM1	I
Intercellular adhesion molecule 2	ICAM2	1
Intercellular adhesion molecule 3	ICAM3	1
Interferon alpha	IFNA1	1
Interferon beta	IFNB	ĺ
Interferon gamma	IFNG	i
Interferon gamma receptor 1	IFNGR1	i
Interferon gamma receptor 2	IFNGR2	į
Interferon regulatory factor 1	IRF1	i
Interferon regulatory factor 4	IRF4	i
Interleukin(IL) 1 receptor	IL1R	i
Interleukin(IL) 1, alpha	IL1A	i
Interleukin(IL) 1, beta	IL1B	i
Interleukin(IL) 10	IL10	i
Interleukin(IL) 10 receptor	IL10R	i
Interleukin(IL) 11	IL11	i
Interleukin(IL) 11 receptor	IL11R	i
Interleukin(IL) 12	IL12	i
Interleukin(IL) 12 receptor, beta 1	IL12RB1	ì
Interleukin(IL) 13	IL13	i
Interleukin(IL) 13 receptor	IL13R	i
Interleukin(IL) 2	IL2	
Interleukin(IL) 2 receptor, alpha	IL2RA	ì
Interleukin(IL) 2 receptor, gamma	IL2RG	i
Interleukin(IL) 3	IL3	i
Interleukin(IL) 3 receptor	IL3R	·
Interleukin(IL) 4	IL4	1
Interleukin(IL) 4 receptor	IL4R	1
Interleukin(IL) 5	IL5	ì
Interleukin(IL) 5 receptor	IL5R	i
Interleukin(IL) 6	IL6	i
Interleukin(IL) 6 receptor	IL6R	1
Interleukin(IL) 7	IL7	·
Interleukin(IL) 7 receptor	IL7R	,
Interleukin(IL) 8	IL8	i
· ,	IL8R	i
Interleukin(IL) 8 receptor Interleukin(IL) 9	IL9	l i
` '	IL9R	1
Interleukin(IL) 9 receptor	IL1RN, IL1RA	
Interleukin(IL) receptor antagonist 1 IP3 kinase	ICHAN, ICHAN	E
ILO VIII 926		<u>_</u>

Isocitrate dehydrogenase Isovaleric acid CoA dehydrogenase Janus kinase 1 Janus kinase 2 Janus kinase 3 Kallman syndrome gene 1 Kell blood group precursor Keratin 1 Keratin 10 Keratin 12 Keratin 13 Keratin 14 Keratin 15 Keratin 16 Keratin 17 Keratin 18 Keratin 2 Keratin 3 Keratin 4 Keratin 5 Keratin 6 Keratin 7 Keratin 8 Keratin 9 Ketohexokinase Kinectin Kinesin, heavy chain Kinesin, light chain L1 cell adhesion molecule Lactotransferrin Lamin A/C Laminin 5, gamma 2	IVD JAK1 JAK2 JAK3 KAL1 XK, KEL KRT1 KRT10 KRT11 KRT12 KRT13 KRT14 KRT15 KRT16 KRT17,PCHC1 KRT18 KRT2 KRT3 KRT4 KRT5 KRT6 KRT7 KRT8 KRT9 KHK KTN1 KNSL1 KNSL1 KNSL1 KNSL1 KNSL1 LAMA3 LAMB3 LAMC2	$\verb""" \verb""" \verb""" \verb""" \verb""" \verb""" \verb""" \verb""$
Laminin M	LAMM	G
Laminin receptor 1	LAMR1	G
Latent transforming growth factor-beta binding protein 2	LTBP2	G
Leptin	LEP	G
Leptin receptor Leukaemia inhibitory factor	LEPR LIF	G G
Leukaemia inhibitory factor receptor	LIFR	G
Leukin	Lett f \	ı
Leukocyte-specific transcript 1	LST-1	i
Leukotriene A4 hydrolase		1
Leukotriene A4 synthase	LTA4S	E
Leukotriene B4 receptor		1

Leukotriene B4 synthase	LTB4S	E
Leukotriene C4 receptor		I
Leukotriene C4 synthase	LTC4S	Ε
Leukotriene D4/E4 receptor		1
LH/choriogonadotropin (CG) receptor	LHCGR	G
LIM homeobox protein 1	LHX1	G
LIM homeobox protein 2	LHX2	G
LIM homeobox protein 3	LHX3	G
LIM homeobox protein 4	LHX4	G
LIM homeobox transcription factor 1, beta	LMX1B	G
Limb girdle muscular dystrophy 1A	LGMD1A	G
Limb girdle muscular dystrophy 1B	LGMD1B	G
Limb girdle muscular dystrophy 2G	LGMD2G	G
Limb girdle muscular dystrophy 2H	LGMD2H	G
Limbic associated membrane protein	LAMP ·	G
LIM-domain only protein 1	LMO1	G
LIM-domain only protein 2	LMO2	G
LIM-domain only protein 3	LMO3	G
LIM-domain only protein 4	LMO4	G
Lipoma-preferred partner gene	LPP	G
Lipoprotein receptor, Low Density	LDLR	Т
Lipoxygenase 12 (platelets)	LOG12	ı
Lipoxygenase 5 (leukocytes)		ı
Long QT-type 2 potassium channels	LQT2, KCNH2	T
Loricrin	LOR	S
Low density lipoprotein receptor-related protein	LIDD	Т
Low density apoptote in receptor-related protein		1
precursor	LAF	1
precursor Luteinizing hormone, beta chain	LHB	ا G
precursor Luteinizing hormone, beta chain Lymphoblastic leukemia derived sequence 1	LHB LYL1	-
precursor Luteinizing hormone, beta chain	LHB	G
precursor Luteinizing hormone, beta chain Lymphoblastic leukemia derived sequence 1 Lymphocyte-specific protein tyrosine kinase Lymphoid enhancer-binding factor	LHB LYL1	G - -
precursor Luteinizing hormone, beta chain Lymphoblastic leukemia derived sequence 1 Lymphocyte-specific protein tyrosine kinase Lymphoid enhancer-binding factor Lysosome-associated membrane protein 1	LHB LYL1 LCK	G G G
precursor Luteinizing hormone, beta chain Lymphoblastic leukemia derived sequence 1 Lymphocyte-specific protein tyrosine kinase Lymphoid enhancer-binding factor	LHB LYL1 LCK LEF-1	G - -
precursor Luteinizing hormone, beta chain Lymphoblastic leukemia derived sequence 1 Lymphocyte-specific protein tyrosine kinase Lymphoid enhancer-binding factor Lysosome-associated membrane protein 1 Lysosome-associated membrane protein 2 MAD (mothers against decapentaplegic,	LHB LYL1 LCK LEF-1 LAMP1	G G G
Luteinizing hormone, beta chain Lymphoblastic leukemia derived sequence 1 Lymphocyte-specific protein tyrosine kinase Lymphoid enhancer-binding factor Lysosome-associated membrane protein 1 Lysosome-associated membrane protein 2 MAD (mothers against decapentaplegic, Drosophila) homologue 2	LHB LYL1 LCK LEF-1 LAMP1 LAMP2	G G G G
precursor Luteinizing hormone, beta chain Lymphoblastic leukemia derived sequence 1 Lymphocyte-specific protein tyrosine kinase Lymphoid enhancer-binding factor Lysosome-associated membrane protein 1 Lysosome-associated membrane protein 2 MAD (mothers against decapentaplegic, Drosophila) homologue 2 MAD (mothers against decapentaplegic,	LHB LYL1 LCK LEF-1 LAMP1 LAMP2	G G G G
Luteinizing hormone, beta chain Lymphoblastic leukemia derived sequence 1 Lymphocyte-specific protein tyrosine kinase Lymphoid enhancer-binding factor Lysosome-associated membrane protein 1 Lysosome-associated membrane protein 2 MAD (mothers against decapentaplegic, Drosophila) homologue 2	LHB LYL1 LCK LEF-1 LAMP1 LAMP2 MADH2	G G G G
Luteinizing hormone, beta chain Lymphoblastic leukemia derived sequence 1 Lymphocyte-specific protein tyrosine kinase Lymphoid enhancer-binding factor Lysosome-associated membrane protein 1 Lysosome-associated membrane protein 2 MAD (mothers against decapentaplegic, Drosophila) homologue 2 MAD (mothers against decapentaplegic, Drosophila) homologue 3 MAD (mothers against decapentaplegic,	LHB LYL1 LCK LEF-1 LAMP1 LAMP2 MADH2	G G G G
precursor Luteinizing hormone, beta chain Lymphoblastic leukemia derived sequence 1 Lymphocyte-specific protein tyrosine kinase Lymphoid enhancer-binding factor Lysosome-associated membrane protein 1 Lysosome-associated membrane protein 2 MAD (mothers against decapentaplegic, Drosophila) homologue 2 MAD (mothers against decapentaplegic, Drosophila) homologue 3	LHB LYL1 LCK LEF-1 LAMP1 LAMP2 MADH2	66666
Luteinizing hormone, beta chain Lymphoblastic leukemia derived sequence 1 Lymphocyte-specific protein tyrosine kinase Lymphoid enhancer-binding factor Lysosome-associated membrane protein 1 Lysosome-associated membrane protein 2 MAD (mothers against decapentaplegic, Drosophila) homologue 2 MAD (mothers against decapentaplegic, Drosophila) homologue 3 MAD (mothers against decapentaplegic,	LHB LYL1 LCK LEF-1 LAMP1 LAMP2 MADH2	66666
Luteinizing hormone, beta chain Lymphoblastic leukemia derived sequence 1 Lymphocyte-specific protein tyrosine kinase Lymphoid enhancer-binding factor Lysosome-associated membrane protein 1 Lysosome-associated membrane protein 2 MAD (mothers against decapentaplegic, Drosophila) homologue 2 MAD (mothers against decapentaplegic, Drosophila) homologue 3 MAD (mothers against decapentaplegic, Drosophila) homologue 4	LHB LYL1 LCK LEF-1 LAMP1 LAMP2 MADH2 MADH3 MADH4	00000 0
Luteinizing hormone, beta chain Lymphoblastic leukemia derived sequence 1 Lymphocyte-specific protein tyrosine kinase Lymphoid enhancer-binding factor Lysosome-associated membrane protein 1 Lysosome-associated membrane protein 2 MAD (mothers against decapentaplegic, Drosophila) homologue 2 MAD (mothers against decapentaplegic, Drosophila) homologue 3 MAD (mothers against decapentaplegic, Drosophila) homologue 4 MADS box transcription-enhancer factor 2A	LHB LYL1 LCK LEF-1 LAMP1 LAMP2 MADH2 MADH3 MADH4 MEF2A	00000 0 0
Luteinizing hormone, beta chain Lymphoblastic leukemia derived sequence 1 Lymphocyte-specific protein tyrosine kinase Lymphoid enhancer-binding factor Lysosome-associated membrane protein 1 Lysosome-associated membrane protein 2 MAD (mothers against decapentaplegic, Drosophila) homologue 2 MAD (mothers against decapentaplegic, Drosophila) homologue 3 MAD (mothers against decapentaplegic, Drosophila) homologue 4 MADS box transcription-enhancer factor 2A MADS box transcription-enhancer factor 2B MADS box transcription-enhancer factor 2C MADS box transcription-enhancer factor 2D	LHB LYL1 LCK LEF-1 LAMP1 LAMP2 MADH2 MADH3 MADH4 MEF2A MEF2A MEF2B	00000 0 0 0000
Luteinizing hormone, beta chain Lymphoblastic leukemia derived sequence 1 Lymphocyte-specific protein tyrosine kinase Lymphoid enhancer-binding factor Lysosome-associated membrane protein 1 Lysosome-associated membrane protein 2 MAD (mothers against decapentaplegic, Drosophila) homologue 2 MAD (mothers against decapentaplegic, Drosophila) homologue 3 MAD (mothers against decapentaplegic, Drosophila) homologue 4 MADS box transcription-enhancer factor 2A MADS box transcription-enhancer factor 2B MADS box transcription-enhancer factor 2C MADS box transcription-enhancer factor 2D Malate dehydrogenase, mitochondrial	LHB LYL1 LCK LEF-1 LAMP1 LAMP2 MADH2 MADH3 MADH4 MEF2A MEF2B MEF2C MEF2D MDH2	00000 0 0 000
Luteinizing hormone, beta chain Lymphoblastic leukemia derived sequence 1 Lymphocyte-specific protein tyrosine kinase Lymphoid enhancer-binding factor Lysosome-associated membrane protein 1 Lysosome-associated membrane protein 2 MAD (mothers against decapentaplegic, Drosophila) homologue 2 MAD (mothers against decapentaplegic, Drosophila) homologue 3 MAD (mothers against decapentaplegic, Drosophila) homologue 3 MAD (mothers against decapentaplegic, Drosophila) homologue 4 MADS box transcription-enhancer factor 2A MADS box transcription-enhancer factor 2B MADS box transcription-enhancer factor 2C MADS box transcription-enhancer factor 2D Malate dehydrogenase, mitochondrial Malignant proliferation, eosinophil gene	LHB LYL1 LCK LEF-1 LAMP1 LAMP2 MADH2 MADH3 MADH4 MEF2A MEF2B MEF2C MEF2D	00000 0 0 0000E-
Luteinizing hormone, beta chain Lymphoblastic leukemia derived sequence 1 Lymphocyte-specific protein tyrosine kinase Lymphoid enhancer-binding factor Lysosome-associated membrane protein 1 Lysosome-associated membrane protein 2 MAD (mothers against decapentaplegic, Drosophila) homologue 2 MAD (mothers against decapentaplegic, Drosophila) homologue 3 MAD (mothers against decapentaplegic, Drosophila) homologue 4 MADS box transcription-enhancer factor 2A MADS box transcription-enhancer factor 2B MADS box transcription-enhancer factor 2C MADS box transcription-enhancer factor 2D Malate dehydrogenase, mitochondrial Malignant proliferation, eosinophil gene Malonyl CoA decarboxylase	LHB LYL1 LCK LEF-1 LAMP1 LAMP2 MADH2 MADH3 MADH4 MEF2A MEF2B MEF2C MEF2D MDH2	00000 0 0 0000m-m
Luteinizing hormone, beta chain Lymphoblastic leukemia derived sequence 1 Lymphocyte-specific protein tyrosine kinase Lymphoid enhancer-binding factor Lysosome-associated membrane protein 1 Lysosome-associated membrane protein 2 MAD (mothers against decapentaplegic, Drosophila) homologue 2 MAD (mothers against decapentaplegic, Drosophila) homologue 3 MAD (mothers against decapentaplegic, Drosophila) homologue 3 MAD (mothers against decapentaplegic, Drosophila) homologue 4 MADS box transcription-enhancer factor 2A MADS box transcription-enhancer factor 2B MADS box transcription-enhancer factor 2C MADS box transcription-enhancer factor 2D Malate dehydrogenase, mitochondrial Malignant proliferation, eosinophil gene	LHB LYL1 LCK LEF-1 LAMP1 LAMP2 MADH2 MADH3 MADH4 MEF2A MEF2B MEF2C MEF2D MDH2	00000 0 0 0000E-

Mannosidase, beta A lysosomal	MANBA MAPKK1; MEK1	E G
MAPK kinase 1	MAPKK4; MEK4;	G
MAPK kinase 4	SERK1	G
AAA DIKAL'	MAPKK6; MEK6	G
MAPK kinase 6	MAPKKK MAPKKK	G
MAPKK kinase	MGP	. G
Matrix Gla protein	MMP1	. G
Matrix metalloproteinase 1	MMP10	E
Matrix metalloproteinase 10	MMP11	E
Matrix metalloproteinase 11	MMP12	E
Matrix metalloproteinase 12		E
Matrix metalloproteinase 13	MMP13	E
Matrix metalloproteinase 14	MMP14	E
Matrix metalloproteinase 15	MMP15	E
Matrix metalloproteinase 16	MMP16	
Matrix metalloproteinase 17	MMP17	E E
Matrix metalloproteinase 18	MMP18	E
Matrix metalloproteinase 19	MMP19 MMP2	E
Matrix metalloproteinase 2	MMP3, STMY1	E
Matrix metalloproteinase 3	MMP4	E
Matrix metalloproteinase 4	MMP5	E
Matrix metalloproteinase 5	MMP6	E
Matrix metalloproteinase 6	MMP7	E
Matrix metalloproteinase 7	MMP8	E
Matrix metalloproteinase 8	MMP9	E
Matrix metalloproteinase 9	MXI1	G
MAX-interacting protein 1	MALI	E
MEK kinase, MEKK	MC1R	T
Melanocortin 1 receptor	MC1R MC2R	Ť
Melanocortin 2 receptor	MC4R	Ť
Melanocortin 4 receptor	MEN1	Ġ
Menin		G
Mesoderm-specific transcript	MEST	
Methionine adenosyltransferase	MAT1A, MAT2A	E E
Methionine synthase	MTR	E
Methionine synthase reductase	MTRR	E
Methylguanine-DNA methyltransferase	MGMT	E
Methylmalonyl-CoA mutase	MUT MVK	E
Mevalonate kinase	IVIVI	
MHC Class I: A		1
MHC Class I: B		1
MHC Class I: C		
MHC Class I: LMP-2, LMP-7	ADCD TADA	1
MHC Class I: Tap1	ABCR, TAP1	
MHC Class II: DP	HLA-DPB1	! !
MHC Class II: DQ		1
MHC Class II: DR	TADO DOFO	i 1
MHC Class II: Tap2	TAP2, PSF2	1

MHC Class II:Complementation group A MHC Class II:Complementation group B MHC Class II:Complementation group C MHC Class II:Complementation group D Microphthalmia-associated transcription factor Microsomal triglyceride transfer protein Microtuble associated protein Midline 1 Mismatch repair gene, PMSL1 Mismatch repair gene, PMSL2 Mitochondrial trifunctional protein, alpha subunit	MHC2TA rfxank RFX5 RFXAP MITF MTP MAP MID1 PMS1 PMS2 HADHA	I I I I G T S G G E
Mitochondrial trifunctional protein, beta subunit Mitogen-activated protein (MAP) kinase Molybdenum cofactor synthesis 1 Molybdenum cofactor synthesis 2	MAPK MOCS1 MOCS2	HGHH
Monoamine oxidase A Monoamine oxidase B	MAOA MAOB	E
Monocyte chemoattractant protein 1	MCP1	-
Motilin	MLN	Ġ
Msh homeobox homolog 1	MSX1	G
Msh homeobox homolog 2	MSX2	G
Mucolipidoses	GNPTA	E
Mulibrey nanism	MUL	T
Multidrug resistance associated protein	MRP	G
Muscarinic receptor, M1	CHRM1	Ν
Muscarinic receptor, M2	CHRM2	Ν
Muscarinic receptor, M3	CHRM3	N
Muscarinic receptor, M4	CHRM4	N
Muscarinic receptor, M5	CHRM5	N
Muscle phosphorylase	PYGM	E
Mutated in colorectal cancers, MCC	MCC	G
MutC hamalan 2	MLH1 MSH2	G
MutS homolog 2 MutS homolog 3	MSH3	G G
Myelin protein peripheral 22	PMP22	S
Myelin protein zero	MPZ	S
Myelodysplasia syndrome 1 gene	MDS1	Ğ
Myeloid leukemia factor-1	MLF1	Ĭ
Myocilin	MYOC	T
Myogenic factor 3	MYF3	G
Myogenic factor 4	MYF4	G
Myogenic factor 5	MYF5	G
Myomesin 1	MYOM1	S S
Myomesin 2	MYOM2	S
Myosin 15	MYO15	S
Myosin 6	MYO6	S
Myosin 7A	MYO7A	S

Myosin, cardiac Myotubularin Na+, K+ ATPase, alpha Na+, K+ ATPase, beta 1 Na+, K+ ATPase, beta 2 Na+, K+ ATPase, beta 3 Na+/H+ exchanger 1 Na+/H+ exchanger 2 Na+/H+ exchanger 3 Na+/H+ exchanger 4 Na+/H+ exchanger 5 N-acetylgalactosamine-6-sulfate sulfatase N-acetylglucosaminidase, alpha N-acetyltransferase 1 N-acetyltransferase 2 NADH dehydrogenase	MYH7 MTM1 ATP1A1 ATP1B1 ATP1B2 ATP1B3 NHE1 NHE2 NHE3 NHE4 NHE5 GALNS GNS NAGLU NAT1 NAT2	SSGGGTTTTTEEEEE
NADH dehydrogenase (ubiquinone) Fe-S protein 1	NDUFS1	Ε
NADH dehydrogenase (ubiquinone) Fe-S protein 4	NDUFS4	Ε
NADH dehydrogenase (ubiquinone)	NDUFV1	Ε
flavoprotein 1 NADH-cytochrome b5 reductase	DIA1	E
NADPH-dependent cytochrome P450 reductase	POR	E
Natural resistance-associated macrophage	NRAMP1	I
protein 1 NB6	·	1
Necdin	NDN	Ġ
Nephronophthisis 1	NPHP1	T
Nephronophthisis 2	NPHP2	Ť
Nephrosis 1	NPHS1	Ť
Nerve growth factor	NGF	Ġ
Nerve growth factor receptor	NGFR	Ğ
Neural retina-specific gene	NRL	G
Neuraminidase sialidase	NEU	T
Neuregulin	HGL	Ġ
Neurite growth-promoting factor 2	MDK	N
Neurite inhibitory protein		N
Neuroendocrine convertase 1	NEC1, PCSK1	E
Neurofibromin 1	NF1	G
Neurofibromin 2	NF2	Ğ
Neurofilament protein, heavy	NFH	S
Neurofilament protein, NF125	NF150	S
Neurofilament protein, NF200	NF200	S
Neurofilament protein, NF68	NF68	S
Neuronal apoptosis inhibitory protein	NAIP	Ī
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Neuronal molecule-1 Neuronal molecule-1 receptor		ļ
Neuropeptide Y	NPY	N
Neuropeptide Y receptor Y1	NPY1R	N
Neuropeptide Y receptor Y2	NPY2R	N
Neurotrophic tyrosine kinase receptor 1	NTRK1	
Neurotrophin 3	NTF3 or NT3	G
Neurturin	NRTN	G
	·	G E
Neutral endopeptidase Neutrophil cystolic factor 1	NCF1	_
Neutrophil cystolic factor 2	NCF2	!
Niacin receptor	1101 2	Ġ
Nibrin	NBS1	G
Nitric oxide synthase 1, NOS1	NOS1	E
Nitric oxide synthase 1, NOS2	NOS2	
Nitric oxide synthase 2, NOS3	NOS3	E
Nodal	NODAL	G
Noggin	NOG	G
Norrie disease protein	NDP	G
Notch 1	NOTCH1	G
Notch 2	NOTCH2	G
Notch 3	NOTCH3	G
Notch ligand - jagged 1	JAG1, AGS	Ğ
Nuclear factor I-kappa-B-like gene	IKBL	Ī
Nuclear factor kappa beta	NFKB	i
Nuclear factor of activated T cells (NFAT)	NFATC .	Ġ
complex, cytosolic		
Nuclear factor of activated T cells (NFAT)	NFATP	G
complex, preexisting component		
Nuclear mitotic apparatus protein 1	NUMA1	G
Nucleophosmin	NPM1	T
Nucleoside diphosphate kinase-A	NDPKA	Ε
Ocular albinism 1	OA1	S
Oculocutaneous albinism II	OCA2	S
Oligophrenin-1	OPHN1	G
Oncogene abl1	ABL1	G
Oncogene abl2		G
Oncogene akt1		G
Oncogene akt2	AKT2	G
Oncogene axi	AXL	G
Oncogene bcl2		G
Oncogene bcr/abl		G
Oncogene B-lym		G
Oncogene B-raf		G
Oncogene clk1		G
Oncogene c-myc		G
Oncogene cot		G
Oncogene crk		G

Oncogene crkl		G
Oncogene ect2		G
Oncogene ELK1	ELK1	G
Oncogene ELK2	ELK2	G
Oncogene ems1		G
Oncogene ERB		Ğ
Oncogene ERB2		Ğ
Oncogene ERBA		G
Oncogene ERBAL2		G
Oncogene ERG (early reponse gene)		G
Oncogene ETS1		G
Oncogene ETS2		Ğ
Oncogene EVI1	EVI1	G
Oncogene fes		G
Oncogene fgr		G
Oncogene fos	FOS	G
Oncogene fps	100	G
Oncogene GLI1	GLI	G
Oncogene GLI2	GLI2	G
Oncogene GLI3	GLI3	G
Oncogene gro1	CLIO	· G
Oncogene gro2		G
Oncogene Ha-ras	HRAS	G
Oncogene hs1	111010	G
Oncogene hst	FGF4	G
Oncogene int1	WNT1	G
Oncogene int2	FGF3	G
Oncogene int3	Notch4	G
Oncogene int4	WNT3	G
Oncogene jun	JUN	Ğ
Oncogene KIT	KIT, PBT	Ğ
Oncogene LCO	LCO	G
Oncogene I-myc		G
Oncogene Ipsa		G
Oncogene lyn		Ğ
Oncogene maf		Ğ
Oncogene mas1		G
Oncogene mcf2		G
Oncogene mdm2	MDM2	G
Oncogene mel		G
Oncogene met	MET	G
Oncogene mos		G
Oncogene mpl		G
Oncogene MUM1	MUM1	G
Oncogene myb	MYB	G
Oncogene myc	MYC	Ğ
Oncogene n-myc		G
Oncogene N-ras (neuroblastoma v-ras)	NRAS	G
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Oncogene ovc		G
Oncogene pim1		G
Oncogene pti-1sea		G
Oncogene pvt1		G
Oncogene raf	RAF	G
Oncogene ralb		G
Oncogene rel		G
Oncogene ret	RET	G
Oncogene r-myc		G
Oncogene ros		G
Oncogene R-ras		G
Oncogene sis	PDGFB	G
Oncogene ski		G
Oncogene sno		G
Oncogene spi1		G
Oncogene src		G
Oncogene tc21		G
Oncogene TEL		G
Oncogene tim		G
Oncogene vavtrk		G
Oncogene v-Ki-ras2		G
Oncogene yes		G
Oncogene yuasa		G
Oncostatin M		G
Oncostatin M receptor		G
Orexin		G
Orexin 1 receptor		G
Orexin 2 receptor		G
Ornithine delta-aminotransferase		E
Ornithine transcarbamoylase		Ε
Orthodenticle (Drosophila) homolog 1		G
Orthodenticle (Drosophila) homolog 2		G
Osteocalcin		S
Osteonectin		G
Osteopontin		G
Osteoprotegerin		G
Otoferlin		N
Oxytocin		N
Oxytocin receptor		N
p21-activated kinase 3		G
Paired box homeotic gene 1		G
Paired box homeotic gene 2		G
Paired box homeotic gene 3	PAX3	G
Paired box homeotic gene 6	PAX6	G
Paired box homeotic gene 7		G
Paired box homeotic gene 8		G
Paired-like homeodomain transcription factor 2		G
Paired-like homeodomain transcription factor 3	PITX3	G

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Palmitoyl-protein thioesterase	PPT	Т
Pancreatic amylase		E
Parathyroid hormone	PTH	G
Parathyroid hormone receptor	PTHR1	G
Parathyroid hormone related-peptide	PTHrP	G
Parathyroid hormone-like hormone	PTHLH	G
Parvalbumin	PVALB	G
Patched (Drosophila) homolog, PTCH	PTCH	G
PCNA (proliferating cell nuclear antigen)		Ε
Peanut-like 1	PNUTL1	1
Pendrin, PDS	PDS	Ť
Peptidylglycine alpha-amidating	PAM	Ė
monooxygenase		_
Peripherin, PRPH	•	s
Peroxisomal membrane protein 1	PXMP1	S
Peroxisomal membrane protein 3	PXMP3	T
Peroxisome biogenesis factor 1	PEX1	Ť
Peroxisome biogenesis factor 19	PEX19	Ť
Peroxisome biogenesis factor 6	PEX6	Ť
Peroxisome biogenesis factor 7	PEX7	T
Peroxisome proliferative activated receptor,	PPARA	Ť
•	FFARA	ı
alpha Deroviceme preliferative activated recenter	PPARG	· —
Peroxisome proliferative activated receptor,	FPARG	T
gamma	DVD4	_
Peroxisome receptor 1	PXR1	Ţ
Phenylethanolamine N-methyltransferase,	PNMT	Ε
PNMT	OTEN	_
Phosphatase & tensin homolog	PTEN	G
Phosphate regulating gene with homologies to	PHEX	G
endopeptidases on the X chromosome	5.04	_
Phosphatidylinositol glycan, class A	PIGA	G
(paroxysmal nocturnal hemoglobinuria)		_
Phosphatidylinositol transfer protein	PITPN	G
Phosphodiesterase 1 / nucleotide	PDNP1	G
pyrophosphatase 1		
Phosphodiesterase 1 / nucleotide	PDNP2	G
pyrophosphatase 2		
Phosphodiesterase 1 / nucleotide	PDNP3	G
pyrophosphatase 3		
Phosphofructokinase, liver	PFKL	Ε
Phosphofructokinase, muscle	PFKM	Ε
Phosphoglucose isomerase	GPI	E
Phosphoglycerate kinase 1	PGK1	Ε
Phosphoglycerate mutase 2	PGAM2	Ε
Phospholipase A2, group 10	PLA2G10	1
Phospholipase A2, group 1B	PLA2G1B	1
Phospholipase A2, group 2A	PLA2G2A	I
Phospholipase A2, group 2B	PLA2G2B	1
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Phospholipase A2, group 4A Phospholipase A2, group 4C Phospholipase A2, group 5 Phospholipase A2, group 6 Phospholipase C alpha Phospholipase C beta	PLA2G4A PLA2G4C PLA2G5 PLA2G6	
Phospholipase C delta Phospholipase C epsilon	PLCD1	i
Phospholipase C gamma	PLCG1	i
Phosphomannomutase 1	PMM1	G
Phosphomannomutase 2	PMM2	G
Phosphomannomutase-2	PMM2	T
Phosphorylase kinase deficiency, liver	PHK	Ε
Phosphorylase kinase, alpha 2	PHKA2	Ε
Phytanoyl-CoA hydroxylase	PHYH	G
Plakophilin 1	PKP1	Т
Plasminogen	PLG	Ε
Plasminogen activator inhibitor 1	PAI1	Ε
Plasminogen activator inhibitor 2	PAI2	Ε
Plasminogen activator receptor, Urokinase	UPAR; PLAUR	S
Plasminogen activator, Tissue	PLAT; TPA	E
Plasminogen activator, Urokinase	UPA; PLAU	E
Platelet derived growth factor	PDGF	G
Platelet derived growth factor receptor	PDGFR	G
Plectin 1	PLEC1	T
Poly (ADP-ribose) synthetase	PARS	E
Poly(A) binding protein 2	PABP2	G N
Postsynaptic density-95 protein	PSD95 KCNJ1	N
Potassium inwardly-rectifying channel J1	KCNJ11 KCNJ11	N
Potassium inwardly-rectifying channel J11	KCNA1	N
Potassium voltage-gated channel A1 Potassium voltage-gated channel E1	KCNE1	N
	KCNQ1	N
Potassium voltage-gated channel Q1 Potassium voltage-gated channel Q2	KCNQ2	N
Potassium voltage-gated channel Q3	KCNQ3	N
Potassium voltage-gated channel Q4	KCNQ4	N
POU domain, class 1, transcription factor 1	POU1F1	G
(Pit1)		_
POU domain, class 3, transcription factor 4	POU3F4	G
POU domain, class 4, transcription factor 3	POU4F3	G
Pre-B-cell leukemia transcription factor 1	PBX1	G
Preproglucagon	GCG;GLP1; GLP2	G
Procollagen N-protease		Е
Procollagen peptidase		E
Profibrinolysin		G
Progesterone receptor (RU486 binding	PGR	G
receptor)	5.15	_
Prohibitin	PHB	G

Prolactin	PRL	G
Protactin receptor	PRLR	G
Prolactin releasing hormone	PRH	G
Proliferin	PLF	G
Proline dehydrogenase	PRODH	Ε
Pro-melanin-concentrating hormone	PMCH	G
Promyelocytic leukemia gene	PML	G
Proopiomelanocortin	POMC	N
Prophet of Pit1	PROP1	G
Propionyl-CoA carboxylase, alpha	PCCA	Ē
Propionyl-CoA carboxylase, beta	PCCB	E
Prosaposin	PSAP	N
Prostaglandin (PG) D synthase, hematopoietic	PGDS	Ε
Prostaglandin isomerase		Ğ
Prostaglandin-endoperoxidase synthase 2	PTGS2	Ğ
Prostate cancer anti-metastasis gene KAI1	KAI1	Ğ
Protease nexin 2	PN2	Ē
Protective protein for beta-galactosidase	PPGB	Ē
Protein C	PROC	ī
Protein kinase A		Ė
Protein kinase B	PRKB	_
Protein kinase C, alpha	PRKCA	Е
Protein kinase C, gamma	PRKCG	Ē
Protein kinase DNA-activated	PRKDC	Ē
Protein kinase G		E
Protein phosphatase 1, regulatory (inhibitor)	PPP1R3	E
subunit 3		
Protein phosphatase 2, regulatory subunit A,	PPP2R1B	Ε
beta isoform		
Protein tyrosine phosphatase, non-receptor	PTPN12	G
type 12		
Protoporphyrinogen oxidase	PPOX	Ε
Pterin-4-alpha-carbinolamine	PCBD	
Purine nucleoside phosphorylase	NP	Ε
Purinergic receptor P1A1		Ν
Purinergic receptor P1A2	•	Ν
Purinergic receptor P1A3		Ν
Purinergic receptor P2X, 1	P2RX1	Ν
Purinergic receptor P2X, 2	P2RX2	Ν
Purinergic receptor P2X, 3	P2RX3	Ν
Purinergic receptor P2X, 4	P2RX4	Ν
Purinergic receptor P2X, 5	P2RX5	Ν
Purinergic receptor P2X, 6	P2RX6	N
Purinergic receptor P2X, 7	P2RX7	N
Purinergic receptor P2Y, 1	P2RY1	N
Purinergic receptor P2Y, 11	P2RY11	Ν
Purinergic receptor P2Y, 2	P2RY2	N
Pyrroline-5-carboxylate synthetase	PYCS	Ε
•		

Pyruvate carboxylase Pyruvate decarboxylase Pyruvate kinase RAD51, DNA repair protein RAD52, DNA repair protein RAD54, DNA repair protein RAD55, DNA repair protein RAD57, DNA repair protein Ras-G-protein Rathke pouch homeobox, RPX Receptor tyrosine kinase (RTK), Nsk2 Recombination activating gene 1 Recombination activating gene 2 Red cone pigment Relaxin H1 Relaxin H2 Replication factor A Replication factor C Retinal pigment epithelium specific protein	PC PDHA PKLR RAD51 RAD52 RAD54 RAD55 RAD57 RAS RPX NSK2 RAG1 RAG2 RCP RLN1 RLN2 RFC2 RPE65	шшшооооооооооошшя
Retinitis pigmentosa gene 1 Retinitis pigmentosa gene 2 Retinitis pigmentosa gene 3 Retinitis pigmentosa gene 6 Retinitis pigmentosa gene 6 Retinitis pigmentosa gene 7 Retinoblastoma 1 Retinoic acid receptor, alpha Retinoic acid receptor, beta Retinoic acid receptor, alpha Retinoid X receptor, alpha Retinoid X receptor, beta Retinoid X receptor, gamma Retinoschisis, X-linked, juvenile Rhabdoid tumors Rhodopsin Ribonucleotide reductase, RRM Ribosomal protein L17 Ribosomal protein L17 Ribosomal protein S19 Ribosomal protein S4, X-linked Ribosomal protein S6 kinase Ribosomal protein S9 RIGUI Rod outer segment membrane protein 1 Ryanodine receptor 1, skeletal SA homolog Sal-like 1 Secretin	RP1 RP2 RP3 RP6 RP7, RDS RB1 RARA RARB RARG RXRA RXRB RXRG RS SMARCB1 RHO RPL13A RPL17 RPS19 RPS4X RPS6KA3 RPS9 RIGUI ROM1 RYR1 SAH SALL1 SCT	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

Semaphorin A5	SEMA4 SEMA5	SSS
Semaphorin D	SEMAE	S S
Jeniaphonii E	SEMA3/F	S
Semaphorn:	SEMAW	S
Semaphorni W	STK11	G
	STK2	G
CCITICATION TIMES -	SNAT	E
Scioloriii it accijii and is is is is is is is is is is is is is	HTR1A	N
ociotoriii recoptori e i i i i	HTR1B	N
Octotoriii receptor, erri :-	HTR1C	N
001010111111000p1011	HTR1D	N
Octotoriii receptor, erri iz	HTR1E	N
Octotoriii receptor, erri ra	HTR1F	N
Coloron recognition	HTR2A	N
Octotoriii rocoptor, or rezer	HTR2B	N
Octotoriii recopier, errizia	HTR2C	N
Serotonin receptor, 5HT3	HTR3	N
Serotonin receptor, 5HT4	HTR4	N
Serotonin receptor, 5HT5	HTR5	N
Serotonin receptor, 5HT6	HTR6	N
Serotonin receptor, 5HT7	HTR7	N
Serum amyloid A	SAA	T
Serum amyloid P	SAP	T
Sex determining region Y, SRY	SRY	G
Short stature homeobox	SHOX	G
Sialoprotein, bone	BSP	G
Signal transducer and activator of transcription	STAT1	G
1		G
Signal transducer and activator of transcription 2		
Signal transducer and activator of transcription 3	SIAI3	G
Signal transducer and activator of transcription 4	STAT4	G
Signal transducer and activator of transcription 5	STAT5	G
Signaling lymphocyte activation molecule	SLAM	ı
Sine oculis homeobox, drosophila, homolog 1	SIX1	G
Sine oculis homeobox, drosophila, homolog 2	SIX2	G
Sine oculis homeobox, drosophila, homolog 5	SIX5	G
Sjoegren (Sjogren) syndrome antigen A1	SSA1	1
Slug protein		G
Small nuclear ribonucleoprotein polypeptide N	SNRPN	S
Smoothelin	SMTN	G
Smoothened (Drosophila) homolog	SMOH	G
Sodium channel, non-voltage gated 1, alpha	SCNN1A	N
, , , , , , , , , , , , , , , , , , , ,		

Sodium channel, non-voltage gated 1, beta Sodium channel, non-voltage gated 1, gamma Sodium channel, voltage gated, type IV, alpha	SCNN1B SCNN1G SCN4A	N N N
polypeptide Sodium channel, voltage gated, type V, alpha polypeptide	SCN5A	N
Sodium channel, voltage-gated, type 1, beta polypeptide	SCN1B	Ν
Solute carrier family 1 (amino acid transporter), member 6	SLC1A6	Т
Solute carrier family 1 (glial high affinity	SLC1A3	T
glutamate transporter), member 3 Solute carrier family 1 (glutamate transporter), member 1	SLC1A1	Т
Solute carrier family 1 (glutamate transporter), member 2	SLC1A2	Τ
Solute carrier family 1 (neutral amino acid transporter), member 4	SLC1A4	T
Solute carrier family 10 (sodium/bile acid cotransporter family), member 1	SLC10A1	Τ
Solute carrier family 10 (sodium/bile acid cotransporter family), member 2	SLC10A2	Т
Solute carrier family 12, member 1	SLC12A1	Т
Solute carrier family 12, member 2	SLC12A2	Т
Solute carrier family 12, member 3	SLC12A3	Т
Solute carrier family 14, member 2	SLC14A2	Т
Solute carrier family 15 (H+/peptide transporter, intestinal), member 1	SLC15A1	Т
Solute carrier family 15 (H+/peptide transporter, kidney), member 2	SLC15A2	Т
Solute carrier family 16 (monocarboxylate transporter), member 1	SLC16A1	Т
Solute carrier family 16 (monocarboxylate transporter), member 7	SLC16A7	Τ
Solute carrier family 17, member 1	SLC17A1	T
Solute carrier family 17, member 2	SLC17A2	Т
Solute carrier family 18, member 3	SLC18A3	Т
Solute carrier family 19 (folate transporter), member 1	SLC19A1	Т
Solute carrier family 2 (facilitated glucose transporter), member 1	SLC2A1	. T
Solute carrier family 2 (facilitated glucose transporter), member 2	SLC2A2	Т
Solute carrier family 2 (facilitated glucose transporter), member 3	SLC2A3	Т
Solute carrier family 2 (facilitated glucose transporter), member 4	SLC2A4	Т
Solute carrier family 2 (facilitated glucose	SLC2A5	T

transporter), member 5		
Solute carrier family 20, member 1	SLC20A1	Τ
Solute carrier family 20, member 2	SLC20A2	T
Solute carrier family 20, member 3	SLC20A3	T
Solute carrier family 21, member 2	SLC21A2	Т
Solute carrier family 21, member 3	SLC21A3	Т
Solute carrier family 22, member 1	SLC22A1	T
Solute carrier family 22, member 2	SLC22A2	Ť
Solute carrier family 22, member 5	SLC22A5	Ť
Solute carrier family 25, member 12	SLC25A12	Ť
Solute carrier family 3 (facilitated glucose	SLC3A1	÷
transporter), member 1	0200/11	•
Solute carrier family 4 (anion exchanger),	SLC4A1	Т
member 1	320471	•
Solute carrier family 4 (anion exchanger),	SLC4A2	_
member 2	3L04A2	T
	SLC4A3	_
Solute carrier family 4 (anion exchanger), member 3	SLC4A3	T
	CL CEA4	_
Solute carrier family 5 (sodium/glucose	SLC5A1	T
transporter), member 1	CLCEAO	
Solute carrier family 5 (sodium/glucose	SLC5A2	Т
transporter), member 2	CLOFAE	_
Solute carrier family 5 (sodium/glucose	SLC5A5	T
transporter), member 5	01.0540	_
Solute carrier family 5, member 3	SLC5A3	T
Solute carrier family 6 (GAMMA-	SLC6A1	T
AMINOBUTYRIC ACID transporter), member 1	01.0040	_
Solute carrier family 6 (neurotransmitter	SLC6A3	T
transporter, dopamine), member 3		_
Solute carrier family 6 (neurotransmitter	SLC6A2	T
transporter, noradrenaline), member 2		
Solute carrier family 6 (neurotransmitter	SLC6A4	T
transporter, serotonin), member 4		
Solute carrier family 6, member 10	SLC6A10	T
Solute carrier family 6, member 6	SLC6A6	T
Solute carrier family 6, member 8	SLC6A8	Т
Solute carrier family 7(amino acid transporter),	SLC7A1	T
member 1		
Solute carrier family 7(amino acid transporter),	SLC7A2	T
member 2		
Solute carrier family 7(amino acid transporter),	SLC7A7	T
member.7		
Solute carrier family 8 (sodium/calcium	SLC8A1	T
exchanger), member 1		
Somatostatin receptor, SSTR2	SSTR2	G
Somatotrophin		G
Sonic hedgehog, SHH	SHH	Ğ
Sorbitol dehydrogenase	SORD	E

Sorcin SOS1 guanine nucleotide exchange factor Spastic paraplegia 7 Spectrin alpha Spectrin beta Sperm adhesion molecule Sperm protamine P1 Sperm protamine P2 Sphingomyelinase Spinocerebellar ataxia 8 gene Split hand/foot malformation gene SRY-box 10 SRY-box 11 SRY-box 3 SRY-box 4 SRY-box 9 Stem cell factor Steroid 5 alpha reductase 1 Steroid 5 alpha reductase 2 Steroid hormone receptor responsive DNA elements	SRI SOS1 SPG7 SPTA1 SPTB SPAM1 PRM1 PRM2 SMPD1 SCA8 DSS1 SOX10 SOX10 SOX11 SOX3 SOX4 SOX9 SCF SRD5A1 SRD5A2	
Steroid sulphatase	STS	E
Steroidogenic acute regulatory protein Stromal derived factor 1	STAR SDF1	T
Succinate dehydrogenase 1	SDF1 SDH1	G E
Succinate denydrogenase 2	SDH1	E
Succinate denydrogenase 2 Succinate thiokinase	30112	F
Succinic semi-aldehyde dehydrogenase	ssadh	E E
Sulfamidase	SGSH	G
Sulfite oxidase	SUOX	Ē
Sulfonylurea receptor	SUR	Ğ
Suppression of tumorigenicity 3 gene	ST3	G
Suppression of tumorigenicity 8 gene	ST8	G
Surfactant pulmonary-associated protein A1	SFTPA1	Т
Surfactant pulmonary-associated protein A2	SFTPA2	T
Surfactant pulmonary-associated protein B	SFTPB	T
Surfactant pulmonary-associated protein C	SFTPC	T
Surfactant pulmonary-associated protein D	SFTPD SUDE4	T
Surfeit 1 Survival of motor neuron 1, telomeric	SURF1 SMN1	G T
SYK-related tyrosine kinase	SRK	1
Syndecan 1	SYND1	Ġ
Syndecan 2	SYND2	G
Syndecan 3	SYND3	G
Syndecan 4	SYND4	G
Synovial sarcoma gene 1	SSX1	G
Synovial sarcoma gene 2	SSX2	G
Talin	TLN	G

TATA binding protein	TBP	G
TATA binding protein associated factor 2A	TAF2A	G
TATA binding protein associated factor 2C2	TAF2C2	G
TATA binding protein associated factor 2D	TAF2E	G
TATA binding protein associated factor 2F	TAF2F	G
TATA binding protein associated factor 2H	TAF2H	G
TATA binding protein associated factor 2I	TAF2I	G
TATA binding protein associated factor 2J	TAF2J	G
TATA binding protein associated factor 2K	TAF2K	G
Tau protein	MAPT	S
T-BOX 1	TBX1	G
T-BOX 2	TBX2	G
T-BOX 3	TBX3	G
T-BOX 4	TBX4	G
T-BOX 5	TBX5	
T-BOX 6	TBX6	G
T-cell acute lymphocytic leukemia 1	TAL1	G
T-cell acute lymphocytic leukemia 2	TAL2	1
T-cell receptor, alpha	TCRA	- 1
T-cell receptor, delta	TCRD	-
Telomerase protein component	·	[
Tenascin (cytotactin)		E S
Tenascin XA	TNXA	S
Terminal deoxynucleotidyltransferase, TDT	INAA	E
Testis-specific protein Y	TSPY	
Thiolase, perioxisomal	1371	G
Thiopurine S-methyltransferase	TPMT	E
Thrombopoietin	THPO	G
Thrombospondin	THBS1	G
Thrombospondin Thromboxane A synthase 1	TBXAS1	G
Thromboxane A2	TXA2	1
Thromboxane A2 receptor	TBXA2R	-
Thy-1 T-cell antigen	THY1	1
Thymidylate synthase	TYMS	ا ا
Thymopoietin	TMPO	E
Thyroglobulin	TG	G
Thyroid hormone receptor, alpha	THRA	G
Thyroid hormone receptor, beta	THRB	G
Thyroid normone receptor, beta	TPO	G
Thyroid peroxidase Thyroid receptor auxiliary protein	TRAP	G
Thyroid-receptor additionally protein Thyroid-stimulating hormone receptor	TSHR	G
Thyroid-stimulating hormone, alpha	TSHA	G
Thyroid-stimulating hormone, alpha Thyroid-stimulating hormone, beta	TSHB	G
		G
Thyrotroph embryonic factor Thyrotropin releasing hormone	TEF	G
	TRH	G
Thyrotropin releasing hormone receptor	TRHR	G
Thyroxin-binding globulin	TBG	T
TIE receptor tyrosine kinase	TIE-1	G

Tip-associated protein Tissue inhibitor of metalloproteinase 1, TIMP1 Tissue inhibitor of metalloproteinase 2, TIMP2 Tissue inhibitor of metalloproteinase 3, TIMP3 Tissue inhibitor of metalloproteinase 4, TIMP4 Tissue non-specific alkaline phosphatase TNSAP	TAP TIMP1 TIMP2 TIMP3 TIMP4	
Titin Tocopherol (alpha) transfer protein Toll-like receptor 4 Topoisomerase I Topoisomerase II Torticollis, keloids, cryptorchidism and renal dysplasia gene	TTN TTPA TLR4 TKCR	STIEEG
Transacylase Transcobalamin 1, TCN1 Transcobalamin 2, TCN2 Transcription factor 1, hepatic Transcription factor 2, hepatic Transcription factor 3 Transcription factor binding to IGHM enhancer 3	TCN2 TCF1 TCF2 TCF3 TFE3	E T T G G G G
Transcription factor, TUPLE1 Transcription termination factor, RNA polymerase 1	TUPLE1 TTF1	N G
Transcription termination factor, RNA polymerase 2	TTF2	G
Transcription termination factor, RNA polymerase 3	TTF3	G
Transferrin	TF	G
Transferrin receptor	TFRC	G
Transforming growth factor, alpha	TGFA	G
Transforming growth factor, beta 2	TGFB2	G
Transforming growth factor, beta induced	TGFBI	G
Transforming growth factor, beta receptor 2	TGFBR2	G
Transglutaminase 1	TGM1	G
Transglutaminase 2	TGM2	G
Transglutaminase 4	TGM4	G
Transketolase	TKT	E
Translagation in renal parairame as	TKTL1	E G
Translocation in renal carcinoma on	TRC8	G
chromosome 8 gene Transthyretin	TTR	Т
Treacle gene	TCOF1	Ġ
Triosephosphate isomerase	TPI1	E
Tropomyosin 1 alpha	TPM1	S
Tropomyosin 3 (non-muscle)	TPM3	S
Troponin C		S

Troponin I	TNNI3	S
Troponin T2, cardiac	TNNT2	S
Trypsin inhibitor		E
Trypsinogen 1	TRY1	E
Trypsinogen 2	TRY2	Ε
Tryptophan hydroxylase	TPH	Ε
Tubby-like protein 1	TULP1	G
Tuberous sclerosis 1	TSC1	G
Tuberous sclerosis 2	TSC2	G
Tubulin	T00404	S
Tumor susceptibility gene 101	TSG101	G
Tumour necrosis factor (TNF) receptor	TRAF1	ı
associated factor 1	TDAFO	
Tumour necrosis factor (TNF) receptor	TRAF2	ļ
associated factor 2	TRAF3	
Tumour necrosis factor (TNF) receptor associated factor 3	IRAFS	1
Tumour necrosis factor (TNF) receptor	TRAF4	1
associated factor 4	INAF4	1
Tumour necrosis factor (TNF) receptor	TRAF5	1
associated factor 5		•
Tumour necrosis factor (TNF) receptor	TRAF6	1
associated factor 6		
Tumour necrosis factor alpha	TNFA	i
Tumour necrosis factor alpha receptor	TNFAR	1
Tumour necrosis factor beta	TNFB	1
Tumour necrosis factor beta receptor	TNFBR	I
Tumour protein p53	TP53, P53	G
Tumour protein p63	TP63	G
Tumour protein p73	TP73	G
Tumour protein, translationally-controlled 1	TPT1	G
Tumour suppresssor gene DRA	DRA	1
Twist (Drosophila) homolog	TWIST	G
Tyrosinase	TYR	Ε
Tyrosinase-related protein 1	TYRP1	E
Tyrosine aminotransferase	TAT	E E
Tyrosine hydroxylase Ubiquitin	TH	
Ubiquitin activating enzyme, E1		G E
Ubiquitin B	UBB	G
Ubiquitin C	UBC	G
Ubiquitin carboxyl-terminal esterase L1	UCHL1	G
Ubiquitin fusion degeneration 1-like	UFD1L	G
Ubiquitin protein ligase E3A	UBE3A	E
UDP-glucose pyrophosphorylase	- 	E
UDP-glucuronosyltransferase 1	ugt1d, UGT1	E
UDP-glucuronosyltransferase 2	UGT2	Ē
Uncoupling protein 1		T

Uncoupling protein 3 Undulin 1 Uridine monophosphate kinase Uridine monophosphate synthetase Uridinediphosphate(UDP)-galactose-4- epimerase	UCP3 COL14A1 UMPK UMPS GALE	T S I E
Uroporphyrinogen decarboxylase Uroporphyrinogen III synthase Usher syndrome 2A Vascular endothelial growth factor Vasoinhibitory peptide Vitamin B12-binding (R) protein Vitamin D receptor Vitelliform macular dystrophy, atypical gene v-myc avian myelocytomatosis viral oncogene	UROD UROS USH2A VEGF VDR VMD1 MYC	EESGGGGTG
Von Hippel-Lindau gene Werner syndrome helicase Wilms tumour gene 1 Wilms tumour gene 2 Wilms tumour gene 4 Winged helix nude Wingless family, wnt2 Wingless family, wnt5 Wingless family, wnt5 Wingless family, wnt7 Wingless family, wnt8 Wiskott-Aldrich syndrome protein Wnt inhibitory factor, WIF-1 Wolf-Hirschhorn syndrome candidate 1 gene Wolfram syndrome 1 gene X (inactive)-specific transcript Xanthine dehydrogenase Xeroderma pigmentosum, complementation group A	VHL WRN WT1 WT2 WT4 WHN WNT2 WNT4 WNT5 WNT7 WNT8 WASP, THC WIF1 WHSC1 WFS1 XIST XDH XPA	00000000000000000000000000000000000000
Xeroderma pigmentosum, complementation group B	XPB	Ε
Xeroderma pigmentosum, complementation group C Xeroderma pigmentosum, complementation group D Xeroderma pigmentosum, complementation	XPC	E E E
group E Xeroderma pigmentosum, complementation group F	XPF	E
Xeroderma pigmentosum, complementation group G	ERCC5	Ε
X-ray repair gene	XRCC9	G

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Xylitol dehydrogenase		E
YY1 transcription factor	YY1	Ğ
Zinc finger protein 198	ZIC198	Š
Zinc finger protein 2	ZIC2	S
Zinc finger protein 3	ZIC3	S
Zinc finger protein HRX	ALL1	Ī
Zona pellucida glycoprotein 1	ZP1	Ġ
Zona pellucida glycoprotein 2	ZP2	Ğ
Zona pellucida glycoprotein 3	ZP3	G
Zona pellucida receptor tyrosine kinase	ZRK	G
Zonadhesin	ZAN	G

- 386.A set of probes, said probes being antibodies or antibody fragments which interact with specific expressed proteins encoded by gene sequences of a group of genes, said probes being for detecting relevant variants (mutations and polymorphisms), e.g. nucleotide substitutions (missense, nonsense, splicing and regulatory), small deletions, small insertions, small insertion deletions, gross insertions, gross deletions, duplications, complex rearrangements and repeat variations in a target group of genes; characterised in that said group is a core group of genes consisting of substantially all of the genes defined in claim 385.
- 387.A set according to claim 385 or 386 in which a minority of said probes for listed genes are absent.
- 388.A set according to claim 385 or 386 in which a limited number of additional probes are present together with substantially all of the probes for the listed genes.
- 389.A set according to claim 385 or 386 in which a limited number of probes are replaced by probes for non-listed genes.
- 390.A set of probes for a core group of genes according to any of claims 385 to 389 in which each gene to be probed is substantially similar (greater than 85% homologous) in sequence to the respective member of the core list of genes.
- 391.A set according to any of claims 385 to 390 consisting of probes for members of a sub-group of the core group.
- 392.A set according to any preceding claim in which said probes are in the form of an array and are spatially arranged at known locations on a substrate.
- 393.A set according to any preceding claim wherein said probes are on a substrate which forms part of or consists of one or more chip plate(s), for use in a chip assay for detection of said gene variants.
- 394.A set according to any preceding claim in which said probes are mass. electrostatic or fluorescence tagged probes.
- 395.A set according to claim 392 or 393 in which said substrate is a semiconductor microchip.
- 396.A set according to any preceding claim for use in a biological assay for detection of said gene variants.

- 397. A set according to any preceding claim for use in the measurement of differential gene expression levels.
- 398. A medical device including a set according to any preceding claim for use in an assay for detection of said gene variants.
- 399. A medical device including a set according to any of claims 385 to 397 for use in an array for detection of differential gene expression levels.
- 400. A method for use in assessing the genomic profile of a patient or individual, the method comprising testing for and detecting the presence or absence of DNA or RNA encoding the relevant structural variants (as defined in claim 385) in a target group of genes by hybridising a nucleic acid-containing sample from said patient or individual to a set according to any of claims 385 and 387 to 397 and relating the probe hybridisation pattern to said variations.
- 401. A method for use in assessing the the genomic profile of a patient or individual, the method comprising testing for and detecting the presence or absence of DNA or RNA encoding the relevant structural variants (as defined in claim 386) in a target group of genes by interacting an expressed-protein-containing sample from said patient or individual with a set of probes according to any of claims 386 to 397 and relating the probe interaction pattern to said variations.
- 402. Use of a set or device according to any of claims 385 to 397 for the prognosis and management of patients suffering from or at risk of dysfunction, damage or disease consequent on an aberration in the processes of development or of experiencing the symptoms and consequences of dysfunction, damage or disease of the body consequent to an aberration in the processes of development.
- 403. Use of a set or device according to any of claims 385 to 397 for predicting likely therapeutic response and adverse events following therapeutic intervention.
- 404. Use of a set or device according to any of claims 385 to 397 for predicting likely therapeutic response and adverse events following the intake of a specific drug.
- 405. Use of a set or device according to any of claims 385 to 397 for predicting likely patterns of symptom clusters (symptom profiles) in disease and the likelihood of subsequent, contingent, disease or symptoms.
- 406. Use of a set or device according to any of claims 385 to 397 for general health screening, occupational health purposes, healthcare planning on a population basis and other healthcare management utilisations.
- 407. Use of a set or device according to any of claims 385 to 397 for the development of new strategies of therapeutic intervention and in clinical trials.
- 408. Use of a set or device according to any of claims 385 to 397 for construction of and generation of algorithms for patient and healthcare management.
- 409. Use of a set or device according to any of claims 385 to 397 for modelling or assessing the impact of diseases or healthcare management strategies on individuals, groups, patient cohorts or populations
- 410. Use of a set or device according to any of claims 385 to 397 for modelling, assessing or exploring the theoretical impact of diseases and healthcare management strategies on individuals, groups, patient cohorts or populations.
- 411. Use of a set or device according to any of claims 385 to 397 for predicting optimum configuration/management of thereapeutic intervention.

- 412.A method according to claim 400 or 401 in which the identification of gene variants is indicative of a higher risk of developing the symptoms and consequences of dysfunction, damage or disease of the body consequent to an aberration in the processes of development for the patient or individual.
- 413. A method for generating a model to assess whether a patient or individual or population or group is or are likely to develop the symptoms and consequences of dysfunction, damage or disease of the body consequent to an aberration in the processes of development, which method comprises:
- i) obtaining DNA or RNA or protein samples from patients or individuals diagnosed as suffering from dysfunction, damage or disease of the body consequent to an aberration in the processes of development;
 - ii) obtaining DNA or RNA or protein samples from a control group of subjects diagnosed as not suffering from the dysfunction, damage or disease of the body consequent to an aberration in the processes of development;
 - iii) analysing the samples obtained in i) and ii) to identify the polymorphic variations encoded in the core group of genes as defined in any of claims 385 to 391;
 - iv) calculating the frequencies of these alleles in the samples from i) and ii);
 - v) comparing the frequencies of these alleles in i) and ii);
 - vi) performing a statistical analysis on the results from v) in order to generate a model for assessing the risk of developing dysfunction, damage or disease of the body consequent to an aberration in the processes of development.
 - 414. A method for assessing whether a given subject will be at risk of developing symptoms, which comprises comparing said subject's genotype with a model generated by the method of claim 413.
 - 415. A method according to any of claims 400, 401, 413 and 414 wherein at least one step is computer-controlled.
 - 416. An assay suitable for use in a method according to any of claims 400, 401, 413 and 414; said assay comprising means for determining the presence or absence of relevant polymorphic variants of the core group of genes as defined in any of claims 385 to 491 in a biological sample.
 - 417. A formatted assay technique (kit) for use in assessing the risk of a patient or individual developing dysfunction, damage or disease of the body consequent to an aberration in the processes of development; said kit comprising:
 - i) means for testing for the presence or absence or DNA or RNA encoding relevant polymorphic variants of the core group of genes as defined in claim 385 or 387 to 391 in a sample of human DNA;
 - ii) reagents for use in the detection process
 - iii) readout indicating the probability of a patient or individual developing dysfunction, damage or disease of the body consequent to an aberration in the processes of development.
 - 418. A formatted assay technique (kit) for use in assessing the risk of a patient or individual developing symptoms; said kit comprising:
 - i) means for testing for the presence or absence of proteins encoded by the core group of genes and/or relevant polymorphic variants of the core group of genes as defined in any of claims 386 to 391 in an expressed-protein-containing human sample;
 - ii) reagents for use in the detection process

- readout indicating the probability of a patient or individual developing dysfunction, damage or disease of the body consequent to an aberration in the processes of development.
- 419. A set of probes according to claim 385, wherein the probes are selected from the group consisting of oligonucleotides and polynucleotides.
- 420.A set of nucleotide probes for detecting relevant variants (mutations and polymorphisms), e.g. nucleotide substitutions (missense, nonsense, splicing and regulatory), small deletions, small insertions, small insertion deletions, gross insertions, gross deletions, duplications, complex rearrangements and repeat variations in a target group of genes which relate to dysfunction, damage or disease of the skin, muscle, connective tissue or bone; said probes being complementary to DNA and RNA sequences of said group of genes; characterised in that said group is a core group of genes consisting of substantially all of the following:

KEY TO 'PROTEIN FUNCTION' COLUMN

- E ENZYME
- T TRANSPORT & STORAGE
- S STRUCTURAL
- I IMMUNITY
- N NERVOUS TRANSMISSION
- G GROWTH & DIFFERENTIATION

SKIN, BONE, MUSCLE GENE LIST	HUGO gene symbol	Protein function
17beta hydroxysteroid oxidoreductase		E
5,10-methylenetetrahydrofolate reductase (NADPH)	MTHFR	E
6-phosphofructo-2-kinase	PFKFB1	Е
Acetoacetyl 2-CoA-thiolase	ACAT2	Ē
Acetylcholine receptor, nicotinic, alpha A1	CHRNA1	N
Acetylcholine receptor, nicotinic, alpha A2	CHRNA2	N
Acetylcholine receptor, nicotinic, alpha A3	CHRNA3	. N
Acetylcholine receptor, nicotinic, alpha A4	CHRNA4	Ν
Acetylcholine receptor, nicotinic, alpha A5	CHRNA5	N
Acetylcholine receptor, nicotinic, alpha A6	CHRNA6	N
Acetylcholine receptor, nicotinic, alpha A7	CHRNA7	N
Acetylcholine receptor, nicotinic, beta 1	CHRNB1	N
Acetylcholine receptor, nicotinic, beta 2	CHRNB2	N
Acetylcholine receptor, nicotinic, beta 3	CHRNB3	N
Acetylcholine receptor, nicotinic, beta 4	CHRNB4	N
Acetylcholine receptor, nicotinic, epsilon	CHRNE	N
Acetylcholine receptor, nicotinic, gamma	CHRNG	N
Acetylcholinesterase	ACHE	E
Achromatopsia 2	ACHM2	S
Acid phosphatase 2, lysosomal	ACP2	E

Actin, alpha, cardiac	ACTC	S
Actin, alpha, skeletal	ACTA1	S
Actin, alpha, smooth, aortic	ACTA2	S
Actin, beta	ACTB	S
Actin, gamma 2	ACTG2	s
Activin		G
Acyl CoA dehydrogenase, short chain	ACADS	Ē
Acyl-CoA thioesterase		Ē
Adaptin, beta 3A	ADTB3A	T
Adducin, alpha	ADD1	S
Adducin, beta	ADD2	S
Adenosine deaminase	ADA	Ē
Adenosine monophosphate deaminase	AMPD	Ē
Adenosine receptor A1	ADORA1	N
Adenosine receptor A2A	ADORA2A	N
Adenosine receptor A2B	ADORA2B	N
Adenosine receptor A3	ADORA3	N
Adenyl cyclase		N
Adenylate cyclase 1	ADCY1	E
Adenylate cyclase 2	ADCY2	E
Adenylate cyclase 3	ADCY3	Ē
Adenylate cyclase 4	ADCY4	Ε
Adenylate cyclase 5	ADCY5	E
Adenylate cyclase 6	ADCY6	E
Adenylate cyclase 7	ADCY7	E
Adenylate cyclase 8	ADCY8	Ε
Adenylate cyclase 9	ADCY9	Ε
Adenylate kinase	AK1	Ε
Adenylosuccinate lyase	ADSL	Ε
Adrenergic receptor, alpha1	ADRA1	Ν
Adrenergic receptor, alpha2	ADRA2	Ν
Adrenergic receptor, beta1	ADRB1	Ν
Adrenergic receptor, beta2	ADRB2	Ν
Adrenergic receptor, beta3	ADRB3	N
Adrenocorticotrophic hormone (ACTH)	ACTHR	G
receptor		
Adrenoleukodystrophy gene	ALD	Ε
Alanine aminotransferase		Т
Alanine-glyoxylate aminotransferase	AGXT	Ε
Albumin, ALB	ALB	T
Alcohol dehydrogenase 1	ADH1	Е
Alcohol dehydrogenase 2	ADH2	Ε
Alcohol dehydrogenase 3	ADH3	E
Alcohol dehydrogenase 4	ADH4	Ε
Alcohol dehydrogenase 5	ADH5	E
Alcohol dehydrogenase 6	ADH6	Ε
Alcohol dehydrogenase 7	ADH7	Ε
Aldehyde dehydrogenase 1	ALDH1	Ε

Aldehyde dehydrogenase 10	ALDH10	E
Aldehyde dehydrogenase 2	ALDH2	Ē
Aldehyde dehydrogenase 5	ALDH5	E
Aldehyde dehydrogenase 6	ALDH6	EE
Aldehyde dehydrogenase 7	ALDH7	
Aldolase A	ALDOA	E
Aldolase B	ALDOB	
Aldolase C	ALDOD	E
Aldosterone receptor	MLR	E
Alkaline phosphatase, liver/bone/kidney	ALPL	G
Alkaptonuria gene	AKU	T
Alkylglycerone phosphate synthase	AGPS	G
alpha tectorin	TECTA	E
alpha thalassemia gene		G
•	ATRX	N
alpha1-antichymotrypsin	AACT	E
alpha1-antitrypsin	PI	E
alpha2-antiplasmin	PLI	E
alpha-actinin 2	ACTN2	G
alpha-actinin 3	ACTN3	G
alpha-Galactosidase A	GLA	E
Alpha-galactosidase B, GALB	NAGA	E
alpha-synuclein	SNCA	N
Amelogenin	AMELX	S
Aminopeptidase P	XPNPEP2	E
Amphiregulin	AREG	G
Amylo-1,6-glucosidase	AGL	E
Amyloid beta A4 precursor protein	APP	N
Amyloid beta A4 precursor-like protein	APLP	N
Androgen binding protein	ABP	T
Androgen receptor	AR ANCOTA	G
Angiopoietin 1 Angiopoietin 2	ANGPT1	G
•	ANGPT2	G
Angiotensin converting enzyme	ACE, DCP1	E
Angiotensinogen	AGT	E
Antidiuretic hormone receptor Anti-Mullerian hormone	ADHR	T
Apolipoprotein A 4	AMH	G
· · ·	APOA4	T
Apolipoprotein A I	APOA1	Ţ
Apolipoprotein A II	APOA2	Ţ
Apolipoprotein B	APOB	T
Apolipoprotein C1	APOC1	Ţ
Apolipoprotein C2	APOC2	Ţ
Apolipoprotein C3	APOC3	Ţ
Apolipoprotein D	APOD	Ţ
Apolipoprotein E	APOE	Ţ
Apolipoprotein H	APOH	T
Arginine vasopressin	AVP	N
Arginine vasopressin receptor 1A	AVPR1A	N

Arginine vasopressin receptor 1B Arginine vasopressin receptor 2 Arrestin Aryl hydrocarbon receptor nuclear	AVPR1B AVPR2 SAG ARNT	N N S T
translocator	A D C A	_
Arylsulfatase A	ARSA	E
Arylsulfatase B	ARSB	E
Arylsulfatase C	ARSC1	E
Arylsulfatase D	ARSD	E
Arylsulfatase E	ARSE	E
Arylsulfatase F	ARSF	Ε
Aspartate receptor		Ν
Aspartoacylase	ASPA	E
Aspartylglucosaminidase	AGA	Ε
Ataxia telangiectasia complementation group D	ATD, ATDC	G
Ataxia telangiectasia gene, AT	ATM	G
ATP cobalamin adenoxyltransferase		Ε
ATP sulphurylase	atpsk2	Ε
ATP/ADP translocase		Ε
Attractin		1
Autoimmune regulator, AIRE	AIRE	1
BCL2-related protein A1	BCL2A1	G
Benzodiazepine receptor		Ν
Bestrophin	VMD2	T
beta 2 microglobulin	B2M	I
beta-endorphin receptor		Ν
beta-galactosidase	GLB1	E
beta-Glucuronidase	GUSB	Ε
beta-synuclein	SNCB	Ν
Bilirubin UDP-glucuronosyltransferase		Ε
Bloom syndrome protein	BLM	G
Blue cone pigment	BCP	S
Bone morphogenetic protein, BMP1	BMP1	G
Bone morphogenetic protein, BMP2	BMP2	G
Bone morphogenetic protein, BMP3	BMP3	G
Bone morphogenetic protein, BMP4	BMP4	G
Bone morphogenetic protein, BMP5	BMP5	G
Bone morphogenetic protein, BMP6	BMP6	G
Bone morphogenetic protein, BMP7	BMP7	G
Bone morphogenetic protein, BMP8	BMP8	G
Bradykinin receptor B1		1
Bradykinin receptor B2		ı
Branched chain aminotransferase 1, cytosolic	BCAT1	Ε
Branched chain aminotransferase 2,	BCAT2	Ε
mitochondrial		
Breast cancer, ductal, 1	BRCD1	G
Breast cancer, ductal, 2	BRCD2	G

Butyrylcholinesterase Ca(2+) transporting ATPase, fast twitch Ca(2+) transporting ATPase, slow twitch Cadherin E Cadherin EP Cadherin N	BCHE ATP2A1 ATP2A2 CDH1	ETTGG
Cadhein P	CDH3	G
Calbindin 1	CALB1	G G
Calbindin D9K	CALB3	
	CALCR	G
Calcitonin receptor /Calcitonin gene-related	CALCR	Ν
peptide receptor	CALCA	
Calcitonin/Calcitonin gene-related peptide	CALCA	N
alpha	0400440	
Calcium channel, voltage-dependent, L type,	CACNAIS	N
alpha 1S subunit	0.001.44	
Calcium channel, voltage-dependent, P/Q	CACNA1A	N
type, alpha 1A subunit		
Calmodulin 1	CALM1	G
Calmodulin 2	CALM2	G
Calmodulin 3	CALM3	G
Calnexin	CANX	G
Calpain	CAPN, CAPN3	E
Cannabinoid receptor	CNR1	Ν
Carbonic anhydrase 3	CA3	Ε
Carbonic anhydrase 4	CA4	E
Carbonic anhydrase, alpha	CA1	Ε
Carbonic anhydrase, beta	CA2	Ε
Carnitine acetyltransferase	CRAT	Ε
Carnitine acylcarnitine translocase	CACT	E
Carnitine palmitoyltransferase I	CPT1A	Ε
Carnitine palmitoyltransferase II	CPT2	E
Carnitine transporter protein	CDSP, SCD	Т
Cartilage oligomeric matrix protein	COMP, EDM1,	Ν
	PSACH	
Cartilage-hair hypoplasia gene	CHH	Ν
Catenin, beta	CTNNB1	G
Cathepsin K	CTSK	E
Caveolin 3	CAV3	E
CD1	CD1	1
CD4	CD4	1
Ceroid lipofuscinosis neuronal 3	CLN3	Ν
Ceruloplasmin precursor	CP	E
Chemokine MCAF	MCAF	1
Chloride channel 1, skeletal muscle	CLCN1	S
Cholecystokinin	CCK	N
Cholecystokinin B receptor	CCKBR	Ν
Cholesterol ester hydroxylase		Ε
Choline acetyltransferase	CHAT	Ε

Choroideremia gene Citrate synthase	СНМ	S
Clathrin	·	E
Cleft palate gene	CPX	Ġ
Cockayne syndrome gene, CKN1	CKN1	G
Coenzyme Q (CoQ)/ubiquinone	ORT	
Collagen I alpha 1	COL1A1	E S
Collagen I alpha 2	COL1A2	S
Collagen II alpha 1	COL2A1	S
Collagen III alpha 1	COL3A1	S
Collagen IV alpha 1	COL4A1	S
Collagen IV alpha 2	COL4A2	S
Collagen IV alpha 3	COL4A3	
Collagen IV alpha 4	COL4A4	S S S
Collagen IV alpha 5	COL4A5	S
Collagen IV alpha 6	COL4A6	S
Collagen IX alpha 2	COL9A2, EDM2	S
Collagen-IX alpha 3	COL9A3	S
Collagen receptor	COLR	S
Collagen V alpha 1	COL5A1	S
Collagen V alpha 2	COL5A2	S
Collagen VI alpha 1	COL6A1	S
Collagen VI alpha 2	COL6A2	S
Collagen VI alpha 3	COL6A3	S
Collagen VII alpha 1	COL7A1	S
Collagen X alpha 1	COL10A1	S
Collagen X alpha 1	COL11A1	S
Collagen XI alpha 2	COL11A2	S
Collagen XVII alpha 1	COL17A1	S
Collagenic-like tail subunit of asymmetric	COLQ	Ε
acetylcholinesterase		
Collapsin		G
Colony-stimulating factor 1	CSF1	G
Colony-stimulating factor 1 receptor	CSF1R	G
Colony-stimulating factor 2	CSF2	G
Colony-stimulating factor 2 alpha receptor	CSF2RA	G
Colony-stimulating factor 2 beta receptor	CSF2RB	G
Colony-stimulating factor 3	CSF3	G
Colony-stimulating factor 3 receptor	CSF3R	G
Complement component C1 inhibitor	C1NH	1
Complement component C1qa	C1QA	i
Complement component C1qb	C1QB	1
Complement component C1qg	C1QG	ı
Complement component C1r	C1R	ı
Complement component C1s	C1S	١
Complement component C2	C2	Ì
Complement component C3	C3	ı
Complement component C4A	C4A	i

Complement component C4B Complement component C5 Complement component C6 Complement component C7 Complement component C8 Complement component C9 Complement component receptor 1 Complement component receptor 2 Complement component receptor 3 Complex I Complex II Complex III	C4B C5 C6 C7 C8B C9 CR1 CR2 CR3 E E
Complex III Complex V Cone-rod homeobox-containing gene Coproporphyrinogen oxidase Core-binding factor, alpha 1 Core-binding factor, alpha 2 Core-binding factor, beta Corticosteroid binding globulin Cortico-steroid binding protein	MTATP6 E CRX G CPO E CBFA1 G CBFA2 G CBFB G CBG N T
Corticotrophin-releasing hormone Corticotrophin-releasing hormone receptor Cortisol receptor C-reactive protein CRP	CRH T CRHR1 T I
Creatine kinase – B and m Creb binding protein Crystallin, alpha A Crystallin, alpha B Crystallin, beta B2	CKBE E CREBBP G CRYAA S CRYAB S CRYBB2 S CRYGA S
Crystallin, gamma A c-src tyrosine kinase Cu2+ transporting ATPase alpha polypeptide Cu2+ transporting ATPase beta polypeptide Cyclic AMP response element binding protein Cyclic AMP-dependent protein kinase	CSK G ATP7A E ATP7B E CREB G
Cyclic nucleotide phosphodiesterase 1B Cyclic nucleotide phosphodiesterase 1B1 Cyclic nucleotide phosphodiesterase 2A3 Cyclic nucleotide phosphodiesterase 3A Cyclic nucleotide phosphodiesterase 3B Cyclic nucleotide phosphodiesterase 4A Cyclic nucleotide phosphodiesterase 4C Cyclic nucleotide phosphodiesterase 5A Cyclic nucleotide phosphodiesterase 5A Cyclic nucleotide phosphodiesterase 6A	PKA E PDE1B E PDE1B1 E PDE2A3 E PDE3A E PDE3B E PDE4A E PDE4C E PDE5A E PDE6A E
Cyclic nucleotide phosphodiesterase 6B Cyclic nucleotide phosphodiesterase 7 Cyclic nucleotide phosphodiesterase 8	PDE6B E PDE7 E PDE8 E

•		
Cyclic nucleotide phosphodiesterase 9A	PDE9A	E
Cyclin-dependent kinase 2	CDK2	G
Cyclin-dependent kinase inhibitor 1C (P57,	CDKN1C	Ğ
KIP2)		•
Cyclin-dependent kinase inhibitor 2A (p16)	CDKN2A	G
Cyclooxygenase 1	COX1	E
Cyclooxygenase 2	COX2	E
CYP11A1	CYP11A1	Ē
CYP11B1	CYP11B1	Ē
CYP11B2	CYP11B2	Ē
CYP17	CYP17	Ē
CYP19	CYP19	Ē
CYP1A1	CYP1A1	Ē
CYP1A2	CYP1A2	Ē
CYP1B1	CYP1B1	Ē
CYP21	CYP21	Ē
CYP24	CYP24	E
CYP27	CYP27	E
CYP27B1	PDDR	Ε
CYP2A1	CYP2A1	Ε
CYP2A13	CYP2A13	E
CYP2A3	CYP2A3	Ε
CYP2A6V2	CYP2A6V2	E
CYP2A7	CYP2A7	Ε
CYP2B6	CYP2B6	Ε
CYP2C18	CYP2C18	Ε
CYP2C19	CYP2C19	Ε
CYP2C8	CYP2C8	Ε
CYP2C9	CYP2C9	Ε
CYP2D6	CYP2D6	Ε
CYP2E1	CYP2E1	Ε
CYP2F1	CYP2F1	E
CYP2J2	CYP2J2	Ε
CYP3A3	CYP3A3	Е
CYP3A4	CYP3A4	Ε
CYP3A5	CYP3A5	Ε
CYP3A7	CYP3A7	E
CYP4A11	CYP4A11	E
CYP4B1	CYP4B1	E
CYP4F2	CYP4F2	E
CYP4F3	CYP4F3	E
CYP51	CYP51	E
CYP5A1	CYP5A1	E
CYP7A	CYP7A	E
CYP8	CYP8	E
Cystathionase	CTH	E
Cystathione beta synthase	CBS	E
Cystic fibrosis transmembrane conductance	CFTR	Ν

regulator, CFTR	•	
Cystinosin	CTNS	T
Cytidine deaminase	CDA	E
Cytidine-5-prime-triphosphate synthetase	CTPS	Ε
Cytochrome a		Ε
Cytochrome b-245 alpha	CYBA	Ε
Cytochrome b-245 beta	CYBB	E
Cytochrome b-5	CYB5	E
Cytochrome c		E
Cytochrome c oxidase, MTCO		E
Cytokine-suppressive antiinflammatory drug-	CSBP1	ī
binding protein 1		
Cytokine-suppressive antiinflammatory drug-	CSBP2	1
binding protein 2		
DAX1 nuclear receptor	DAX1	1
Deafness dystonia peptide	DDP	Ν
Delta 4-5 alpha-reductase		Ε
Delta aminolevulinate dehydratase	ALAD	E
Delta(4)-3-oxosteroid 5-beta-reductase		Ε
Delta-7-dehydrocholesterol reductase	DHCR7	Ε
Dentin sialophosphoprotein	DSPP	G
Desmin	DES	S
DHEA sulfotransferase	STD	Ε
Diastrophic dysplasia sulfate transporter	DTD	Т
Dihydrolipoamide dehydrogenase	DLD	Ν
Dihydroxyacetonephosphate acyltransferase	DHAPAT	Ε
DNA damage binding protein, DDB1	DDB1	S
DNA damage binding protein, DDB2	DDB2	S
DNA methyltransferase	DNMT	Ε
DNA-damage-inducible transcript 3	DDIT3	S
Dopamine receptors D1	DRD1	Ν
Dopamine receptors D2	DRD2	Ν
Dopamine receptors D3	DRD3	Ν
Dopamine receptors D4	DRD4	Ν
Dopamine receptors D5	DRD5	Ν
Dynamin	DNM1	G
Dynorphin receptor		Ν
Dyskerin	DKC1	S
Dystonia 1	DYT1	S
Dystonia 3	DYT3	S
Dystonia 6	DYT6	S
Dystonia 7	DYT7	S
Dystrophia myotonica	DM, DMPK	E
Dystrophia myotonica, atypical	DM2	Ε
Dystrophin	DMD	S
Dystrophin-associated glycoprotein 35kD,	SGCD	S
SCGD		
Dystrophin-associated glycoprotein 35kD,	SGCG	S

SGSG		
Dystrophin-associated glycoprotein 43kD	SGCB	S
Dystrophin-associated glycoprotein 50kD	SGCA	S
Ectodermal Dysplasia 1 gene	ED1	S
Elastase 1	ELAS1	Ε
Elastase 2	ELAS2	E
Elastin	ELN	s
Electron-transfering-flavoprotein alpha	ETFA	T
Electron-transfering-flavoprotein beta	ETFB	Ť
Electron-transferring flavoprotein	ETFDH	Ė
	211 011	_
dehydrogenase	EMD	Т
Emerin		S
Endocardial fibroelastosis 2 gene	EFE2	
Endometrial bleeding-associated factor	EBAF	G
Endothelin 1	EDN1	N
Endothelin 2	EDN2	N
Endothelin 3	EDN3	N
Endothelin converting enzyme	ECE1	N
Endothelin receptor type A	EDNRA	N
Endothelin receptor type B	EDNRB	Ν
Engrailed-1	EN1	G
Engrailed-2	EN2	G
Enolase	ENO1	E
Enoyl CoA hydratase		Ε
Enoyl CoA isomerase		Ε
Enoyl CoA reductase		Ε
Enterokinase	PRSS7, ENTK	Ε
Ephrin receptor tyrosine kinase A	EPHA	G
Ephrin receptor tyrosine kinase B	EPHB	G
Epidermal growth factor	EGF	G
Epidermal growth factor receptor	EGFR	G
Erythrocyte membrane protein band 4.1	EPB41	S
Erythropoietin	EPO	1
Erythropoietin receptor	EPOR	ì
Estrogen receptor	ESR	G
Exostosin 1	EXT1	S
Exostosin 2	EXT2	S
Exostosin 3	EXT3	S
Eye colour gene 3 (brown)	EYCL3	S
Eyes absent 1	EYA1	G
Faciogenital dysplasia	FGD1, FGDY	Т
Factor 1 (No. one)	F1	i
Factor B, properdin	•	i
Factor D		i
Factor H	HF1	i
Factor X	F10	i
Fanconi anemia, complementation group A	FANCA	Ť
Fanconi anemia, complementation group C	FANCC	Ť
rancom anemia, complementation group C	IANO	•

Fanconi anemia, complementation group D Fc fragment of IgG, high affinity IA, receptor	FANCD FCGR1A	T G
for Fc fragment of IgG, low affinity IIa, receptor	FCGR2A	G
for (CD32)		
Ferritin, H subunit		T
Ferritin, L subunit	FTL	T
Fibrillin 1	FBN1	G
Fibrillin 2	FBN2	G
Fibringen alpha	FGA FGB	s s
Fibrinogen beta Fibrinogen gamma	FGG	5
Fibroblast growth factor	FGF1	S
Fibroblast growth factor receptor 1	FGFR1	G
Fibroblast growth factor receptor 2	FGFR2	G G
Fibroblast growth factor receptor 3	FGFR3	G
Fibronectin precursor	FN1	G
Flightless-II, Drosophila homolog of	FLII	G
Folic acid receptor	FOLR	G
Follicle stimulating hormone receptor	FSHR, ODG1	G
Follicle stimulating hormone, FSH	FSHB	G
Forkhead transcription factor 10	FKHL10	G
Forkhead transcription factor 14	FKHL14	G
Forkhead transcription factor 7	FKHL7	Ğ
Fragile site, folic acid type, rare, fra(X) A	FRAXA	N
Frataxin	FRDA	G
Fringe secreted protein, lunatic	LFNG	G
Fringe secreted protein, manic	MFNG	G
Fringe secreted protein, radical	RFNG	G
Fructose-1,6-diphosphatase	FBP1	Ε
Fucosidase alpha-L-1	FUCA1	Ε
Fucosidase alpha-L-2		Ε
Fukuyama type congenital muscular	FCMD	G
dystrophy		
Fumarase	FH	Ε
GABA receptor, alpha 1	GABRA1	Ν
GABA receptor, alpha 2	GABRA2	Ν
GABA receptor, alpha 3	GABRA3	Ν
GABA receptor, alpha 4	GABRA4	Ν
GABA receptor, alpha 5	GABRA5	Ν
GABA receptor, alpha 6	GABRA6	Ν
GABA receptor, beta 1	GABRB1	Ν
GABA receptor, beta 2	GABRB2	Ν
GABA receptor, beta 3	GABRB3	Ν
GABA receptor, gamma 1	GABRG1	Ν
GABA receptor, gamma 2	GABRG2	N
GABA receptor, gamma 3	GABRG3	N
Galactocerebrosidase	GALC	Ε

Galactokinase	GALK1	E
Galactose 1-phosphate uridyl-transferase	GALT GGCX	E
Gamma-glutamyl carboxylase	GJA3	T
Gap junction protein alpha 3		Ţ
Gap junction protein alpha 8	GJA8	T
Gap junction protein beta 3	GJB3	T
Gastrointestinal tumor-associated antigen 1 Gastrulation brain homeobox 2	GA733 GBX2	1
	GAA	G
Glucosidase, acid alpha Glucosidase, acid beta	GBA	E
	GLUR1	E
Glutamate receptor 1 Glutamate receptor 2	GLUR2	N
•	GLUR2 GLUR3	N
Glutamate receptor 3 Glutamate receptor 4	GLUR3 GLUR4	N
Glutamate receptor 5	GLUR5	N
Glutamate receptor 6	GLUR6	N
Glutamate receptor 7	GLUR7	N
Glutamate receptor, ionotropic, NMDA 1	NMDAR1	N
Glutamate receptor, ionotropic, NMDA 7 Glutamate receptor, ionotropic, NMDA 2A	NMDAR1 NMDAR2A	N
Glutamate receptor, ionotropic, NMDA 2A	NMDAR2B	N
Glutamate receptor, ionotropic, NMDA 2C	NMDAR2C	N
Glutamate receptor, ionotropic, NMDA 2D	NMDAR2D	N
Glutathione	GSH	T
Glutathione peroxidase, GPX1	GPX1	Ė
Glutathione S-transferase, GSTZ1	GSTZ1	E
Glyceraldehyde-3-phosphate	GAPDH	E
dehydrogenase, GAPDH	O/11 D11	_
Glycerol kinase	GK	Ε
Glycinamide ribonucleotide (GAR)	GART	Ē
transformylase		_
Glycine receptor, alpha	GLRA2	Ν
Glycine receptor, beta		N
Glycine transporter	GLYT	N
Glycogen phosphorylase	PYGL	Ε
Glycosyltransferases, ABO blood group	ABO	E
GM2 ganglioside activator protein, GM2A	GM2A	E
Green cone pigment	GCP	S
Growth arrest-specific homeobox	GAX	G
Growth factor receptor-bound protein 2	GRB2	G
Growth hormone 1	GH1	G
Growth hormone 2 (placental)	GH2	G
Growth hormone receptor	GHR	G
Growth hormone releasing hormone (GHRH)	GHRH	G
Growth hormone releasing hormone receptor	GHRHR	G
Growth/differentiation factor 5	GDF5	G
GTP cylcohydrolase 1	GCH1	G
GTPase-activating protein, GAP	RASA1	G
Guanidinoacetate N-methyltransferase	GAMT	Ε

Guanine nucleotide-binding protein, alpha activating activity polypeptide, GNAO	GNAO1	N
Guanine nucleotide-binding protein, alpha inhibiting activity polypeptide 1, GNAI1	GNAI1	N
Guanine nucleotide-binding protein, alpha	GNAI2	N
inhibiting activity polypeptide 2, GNAI2 Guanine nucleotide-binding protein, alpha	GNAI3	N
inhibiting activity polypeptide 3, GNAI3 Guanine nucleotide-binding protein, alpha	GNAS1	N
stimulating activity polypeptide, GNAS1 Guanine nucleotide-binding protein, alpha	GNAS2	N
stimulating activity polypeptide, GNAS2 Guanine nucleotide-binding protein, alpha	GNAS3	N
stimulating activity polypeptide, GNAS3 Guanine nucleotide-binding protein, alpha	GNAS4	N
stimulating activity polypeptide, GNAS4 Guanine nucleotide-binding protein, alpha	GNAT1	N
transducing activity polypeptide, GNAT1 Guanine nucleotide-binding protein, alpha	GNAT2	N
transducing activity polypeptide, GNAT2 Guanine nucleotide-binding protein, beta	GNB3	N
polypeptide 3 Guanine nucleotide-binding protein, gamma polypeptide 5	GNG5	N
Guanine nucleotide-binding protein, q polypeptide	GNAQ	N
Guanylate cyclase 2D, membrane (retina- specific)	GUCY2D	Ε
Guanylate cyclase activator 1A (retina)	GUCA1A	Ε
H(+), K(+) - ATPase	ATP4B	Ν
Haeme regulated inhibitor kinase		E
Haemoglobin alpha 1	HBA1	Т
Haemoglobin alpha 2	HBA2	T
Haemoglobin beta	HBB	Т
Haemoglobin delta	HBD	T
Haemoglobin gamma A	HBG1	T
Haemoglobin gamma B	HBG2	T
Haemoglobin gamma G	HBGG	T
Hairless	HR	G
Heat shock protein, HSP60		1
Heat shock protein, HSP70		1
Heat shock protein, HSP90 Heat shock protein, HSPA1		ı
Heat shock protein, HSPA2		i
Heparan sulfamidase		Ė
Heparin binding epidermal growth factor	HBEGF	G
Heparin Cofactor II	HCF2	Ī
Hepatocyte growth factor	HGF	Ġ
,		_

Hermansky-pudlak syndrome gene	HPS	Т
Hexokinase 2	HK2	Ε
Hexosaminidase A	HEXA,TSD	E
Hexosaminidase B	HEXB	
Histamine receptors, H1		N
Histamine receptors, H2		N
Histamine receptors, H3		Ν
HLA-B associated transcript 1	BAT1	1
Holocarboxylase synthetase	HLCS	Ε
Holoprosencephaly 1	HPE1	G
Holoprosencephaly 2	HPE2	G
Holoprosencephaly 3	HPE3	G
Holoprosencephaly 4	HPE4	G
Homeobox (HOX) gene A1	HOXA1	G
Homeobox (HOX) gene A10	HOXA10	G
Homeobox (HOX) gene A11	HOXA11	G
Homeobox (HOX) gene A12	HOXA12	G
Homeobox (HOX) gene A13	HOXA13	G
Homeobox (HOX) gene A2	HOXA2	G
Homeobox (HOX) gene A3	HOXA3	G
Homeobox (HOX) gene A4	HOXA4	G
Homeobox (HOX) gene A5	HOXA5	G
Homeobox (HOX) gene A6	HOXA6	G
Homeobox (HOX) gene A7	HOXA7	G
Homeobox (HOX) gene A8	HOXA8	G
Homeobox (HOX) gene A9	HOXA9	G
Homeobox (HOX) gene B1	HOXB1	G
Homeobox (HOX) gene B2	HOXB2	G G
Homeobox (HOX) gene B3	HOXB3	G
Homeobox (HOX) gene B4	HOXB4	G
Homeobox (HOX) gene B5	HOXB5 HOXB6	G
Homeobox (HOX) gene B6	HOXB7	G
Homeobox (HOX) gene B7	HOXB8	G
Homeobox (HOX) gene B8	HOXB9	G
Homeobox (HOX) gene B9	HOXC13	G
Homeobox (HOX) gene C13	HOXC4	G
Homeobox (HOX) gene C4	HOXC8	G
Homeobox (HOX) gene C8	HOXC9	Ġ
Homeobox (HOX) gene C9	HOXD1	Ğ
Homeobox (HOX) gene D1	HOXD10	Ğ
Homeobox (HOX) gene D10	HOXD12	Ğ
Homeobox (HOX) gene D12	HOXD13	Ğ
Homeobox (HOX) gene D13	HOXD3	Ğ
Homeobox (HOX) gene D3 Homeobox (HOX) gene D4	HOXD4	Ğ
Homeobox (HOX) gene D8	HOXD8	Ğ
Homeobox (HOX) gene D9	HOXD9	Ğ
Homeobox 11	HOX11	G
LIOTHEODOX 1.1		-

Homeobox HB24 Homeobox, HB9 Homeobox, PROX1 Homogentisate 1,2 dioxygenase Human placental lactogen Hypoxia inducible factor 1 Hypoxia inducible factor 2	HLX1 HLXB9 PROX1 HGD CSH1 HIF1A	GGGEGEE-
IC7 A and B Immunoglobulin E (IgE) reponsiveness gene Indian hedgehog, ihh Inhibin, alpha Inhibin, beta A Inhibin, beta B Inhibin, beta C Inositol 1,4,5-triphosphate receptor 3	IGER IHH INHA INHBA INHBB INHBC ITPR3	6 6 6 6 6 6
Insulin promotor factor 1 Insulin-like growth factor 1 Insulin-like growth factor 1 receptor Insulin-like growth factor 2 Insulin-like growth factor 2 receptor Integrin beta 1 Integrin beta 3 Integrin beta 4	IPF1 IGF1 IGF1R IGF2 IGF2R ITGB1 ITGB3 ITGB4	9999999
Integrin, alpha 5 Integrin, alpha 7 Inter-alpha-trypsin inhibitor, IATI Interferon alpha Interferon beta Interferon gamma	ITGA5 ITGA7 IFNA1 IFNB IFNG IFNGR1	GGEIII
Interferon gamma receptor 1 Interferon gamma receptor 2 Interferon regulatory factor 1 Interferon regulatory factor 4 Interleukin(IL) 1 receptor Interleukin(IL) 1, alpha Interleukin(IL) 1, beta	IFNGR2 IRF1 IRF4 IL1R IL1A IL1B	
Interleukin(IL) 10 Interleukin(IL) 10 receptor Interleukin(IL) 11 Interleukin(IL) 11 receptor Interleukin(IL) 12 Interleukin(IL) 12 receptor, beta 1 Interleukin(IL) 13	IL10 IL10R IL11 IL11R IL12 IL12RB1 IL13	
Interleukin(IL) 13 receptor Interleukin(IL) 2 Interleukin(IL) 2 receptor, alpha Interleukin(IL) 2 receptor, gamma Interleukin(IL) 3	IL13R IL2 IL2RA IL2RG IL3	! ! !

Interleukin(IL) 3 receptor Interleukin(IL) 4 Interleukin(IL) 4 receptor Interleukin(IL) 5 Interleukin(IL) 5 receptor Interleukin(IL) 6 Interleukin(IL) 6 receptor Interleukin(IL) 7 Interleukin(IL) 7 receptor Interleukin(IL) 8 Interleukin(IL) 8 receptor Interleukin(IL) 9	IL3R IL4 IL4R IL5 IL5R IL6 IL6R IL7 IL7R IL8 IL8	
Interleukin(IL) 9 receptor Interleukin(IL) receptor antagonist 1 Isocitrate dehydrogenase	IL9R IL1RN, IL1RA	I I E
Kallman syndrome gene 1 Keratin 1 Keratin 10 Keratin 11 Keratin 12 Keratin 13 Keratin 14 Keratin 15 Keratin 16 Keratin 17 Keratin 18 Keratin 2 Keratin 3 Keratin 4 Keratin 5 Keratin 6 Keratin 7 Keratin 8 Keratin 9 Keratin, hair acidic 1 Keratin, hair basic 2 Keratin, hair basic 6 Kininogen, High molecular weight Lactate dehydrogenase, A Lactate dehydrogenase, B Lamin A/C Laminin 5, alpha 3 Laminin 5, beta 3	KAL1 KRT10 KRT11 KRT12 KRT13 KRT14 KRT15 KRT16 KRT17,PCHC1 KRT18 KRT2 KRT3 KRT4 KRT5 KRT6 KRT7 KRT8 KRT7 KRT8 KRT9 KRTHA1 KRTHB1 KRTHB1 KRTHB6 KNG LDHA LDHB LMNA LAMA3 LAMB3	О の の の の の の の の の の の の の の の の の の の
Laminin 5, gamma 2 Laminin M Laminin receptor 1 Latent transforming growth factor-beta binding protein 2	LAMC2 LAMM LAMR1 LTBP2	G G G

Leukotriene A4 hydrolase Leukotriene A4 synthase Leukotriene B4 receptor Leukotriene B4 synthase Leukotriene B4 synthase Leukotriene C4 receptor Leukotriene C4 receptor Leukotriene C4 synthase LIM homeobox transcription factor 1, beta Limb girdle muscular dystrophy 1A Limb girdle muscular dystrophy 1B Limb girdle muscular dystrophy 2G Limb girdle muscular dystrophy 2H Limbic associated membrane protein Lipoprotein receptor, Low Density Lipoxygenase 12 (platelets) Loricrin Low density lipoprotein receptor-related	LST-1 LTA4S LTB4S LTC4S LMX1B LGMD1A LGMD1B LGMD2G LGMD2H LAMP LDLR LOG12 LOR LRP	
protein precursor Luteinizing hormone-releasing hormone Luteinizing hormone-releasing hormone		N N
receptor lymphotoxin Lysosome-associated membrane protein 1 Lysosome-associated membrane protein 2 Lysozyme Lysyl hydroxylase Lysyl oxidase Macrophage activating factor	LAMP1 LAMP2 LYZ PLOD LOX MAF	G G E E
Macrophage inflammatory protein-1 Macrophage inflammatory protein-1 receptor Macrophage inflammatory protein-2 Macrophage inflammatory protein-2 receptor MADS box transcription-enhancer factor 2A MADS box transcription-enhancer factor 2B MADS box transcription-enhancer factor 2C MADS box transcription-enhancer factor 2D Mannose binding protein Mannosidase, alpha B lysosomal Mannosidase, beta A lysosomal Marenostrin Matrix Gla protein Matrix metalloproteinase 1 Matrix metalloproteinase 10 Matrix metalloproteinase 11 Matrix metalloproteinase 12 Matrix metalloproteinase 13 Matrix metalloproteinase 14	MIP1 MIP2 MEF2A MEF2B MEF2C MEF2D MBP MANB MANBA MEFV MGP MMP1 MMP10 MMP11 MMP12 MMP13 MMP14	
Matrix metalloproteinase 14 Matrix metalloproteinase 15	MMP15	E

Matrix metalloproteinase 16 Matrix metalloproteinase 17 Matrix metalloproteinase 18 Matrix metalloproteinase 19 Matrix metalloproteinase 2 Matrix metalloproteinase 3 Matrix metalloproteinase 4 Matrix metalloproteinase 5 Matrix metalloproteinase 6 Matrix metalloproteinase 7 Matrix metalloproteinase 8 Matrix metalloproteinase 8 Matrix metalloproteinase 9 MEK kinase, MEKK Melanocortin 1 receptor	MMP16 MMP17 MMP18 MMP19 MMP2 MMP3, STMY1 MMP4 MMP5 MMP6 MMP7 MMP8 MMP9	
Melanocortin 2 receptor	MC2R	Т
Melanocortin 4 receptor	MC4R	Т
Mesoderm-specific transcript	MEST	G
Methylguanine-DNA methyltransferase	MGMT	Ε
Methylmalonyl-CoA mutase	MUT	E
Mevalonate kinase	MVK	E
MHC Class I: A		l l
MHC Class I: B		
MHC Class I: C		1
MHC Class I: LMP-2, LMP-7	ADOD TADA	1
MHC Class I: Tap1	ABCR, TAP1 HLA-DPB1	
MHC Class II: DP	HLA-UPB I	
MHC Class II: DQ		,
MHC Class II: DR	TAP2, PSF2	1
MHC Class II: Tap2	MHC2TA	i
MHC Class II:Complementation group A	rfxank	i
MHC Class II:Complementation group B MHC Class II:Complementation group C	RFX5	i
	RFXAP	
MHC Class II:Complementation group D	MITF	Ġ
Microphthalmia-associated transcription factor	1411 1 1	J
Midline 1	MID1	G
Mitochondrial trifunctional protein, alpha	HADHA	Ē
subunit		_
Mitochondrial trifunctional protein, beta	HADHB	Ε
subunit	, ,, (2) , , ,	_
Moesin, MSN		S
Molybdenum cofactor synthesis 1	MOCS1	Ē
Molybdenum cofactor synthesis 2	MOCS2	Ē
Monoamine oxidase A	MAOA	E
Monoamine oxidase B	MAOB	Ē
Monocyte chemoattractant protein 1	MCP1	Ī
Mucolipidoses	GNPTA	Ė
Mulibrey nanism	MUL	Ť
maille j marilatti		•

Muscarinic receptor, M1 Muscarinic receptor, M2 Muscarinic receptor, M3 Muscarinic receptor, M4 Muscarinic receptor, M5 Muscle phosphorylase Mutated in colorectal cancers, MCC MutS homolog 3 Myeloperoxidase Myocilin Myogenic factor 3 Myogenic factor 4 Myogenic factor 5 Myoglobin	CHRM1 CHRM2 CHRM3 CHRM4 CHRM5 PYGM MCC MSH3 MPO MYOC MYF3 MYF4 MYF5	ZZZZEGG-FGGGF
Myomesin 1 Myomesin 2 Myopia 1 Myopia 2 Myosin 15 Myosin 5A Myosin 6 Myosin 7A Myosin, cardiac Myosin, light chain 2	MYOM1 MYOM2 MYP1 MYP2 MYO15 MYO5A MYO6 MYO7A MYH7 MYL2	
Myosin, light chain 3 Myotubularin Na+, K+ ATPase, alpha Na+, K+ ATPase, beta 1 Na+, K+ ATPase, beta 2 Na+, K+ ATPase, beta 3 Na+/H+ exchanger 1 Na+/H+ exchanger 2 Na+/H+ exchanger 3 Na+/H+ exchanger 4 Na+/H+ exchanger 5	MYL3 MTM1 ATP1A1 ATP1B1 ATP1B2 ATP1B3 NHE1 NHE2 NHE3 NHE4 NHE4	SSGGGGTTTTT
N-acetylgalactosamine-6-sulfate sulfatase N-acetylglucosamine-6-sulfatase N-acetylglucosaminidase, alpha NADH dehydrogenase NADH-cytochrome b5 reductase NADPH-dependent cytochrome P450	GALNS GNS NAGLU DIA1 POR	
reductase NB6 Nebulin Nephrosis 1 Neural retina-specific gene Neuraminidase sialidase Neuregulin	NEB NPHS1 NRL NEU HGL	I S T G T G

Neuroendocrine convertase 1 Neurokinin A Neurokinin B Neuropeptide Y Neuropeptide Y receptor Y1 Neuropeptide Y receptor Y2 Neurotensin Neurotensin receptor Nibrin Noggin Notch ligand - jagged 1 Nuclear factor I-kappa-B-like gene Nuclear factor kappa beta Nuclear factor of activated T cells (NFAT)	NEC1, PCSK1 NKNA NKNB NPY NPY1R NPY2R NTS NTSR1 NBS1 NOG JAG1, AGS IKBL NFKB NFATC	Z
complex, cytosolic		
Nuclear factor of activated T cells (NFAT) complex, preexisting component	NFATP	G
Ocular albinism 1	OA1	S
Oculocutaneous albinism II	OCA2	S
Oncogene ERG (early reponse gene)	FOS	G G
Oncogene fos	GLI	G
Oncogene GLI1	GLI2	G
Oncogene GLI2	GLI3	G
Oncogene GLI3 Oncogene sis	PDGFB	G
Oncogene src	1 001 0	G
Opioid receptor, delta	OPRD1	N
Opioid receptor, dena	OPRK1	N
Opioid receptor, mu	OPRM1	N
Ornithine delta-aminotransferase	OAT	E
Osteocalcin	<i>57</i> (1	S
Osteonectin	ON	Ğ
Osteopontin	OPN	G٠
Osteoprotegerin	OPG	G
Oxytocin	OXT	N
Oxytocin receptor	OXTR	N
p21-activated kinase 3	PAK3	G
Paired box homeotic gene 1	PAX1	G
Paired box homeotic gene 2	PAX2	G
Paired box homeotic gene 3	PAX3	G
Paired box homeotic gene 6	PAX6	G
Paired box homeotic gene 7	PAX7	G
Paired box homeotic gene 8	PAX8	G
Paired-like homeodomain transcription factor 2	PITX2	G
Paired-like homeodomain transcription factor 3	PITX3	G

Parathyroid hormone Parathyroid hormone receptor Parathyroid hormone related-peptide Parathyroid hormone-like hormone Patched (Drosophila) homolog, PTCH Peanut-like 1 Peripherin, PRPH	PTH PTHR1 PTHrP PTHLH PTCH PNUTL1	G G G G G I S
Peroxisomal membrane protein 1	PXMP1	S
Peroxisomal membrane protein 3	PXMP3	Т
Peroxisome biogenesis factor 1	PEX1	T
Peroxisome biogenesis factor 19	PEX19	Т
Peroxisome biogenesis factor 6	PEX6	T
Peroxisome biogenesis factor 7	PEX7	Т
Peroxisome receptor 1	PXR1	T
Phenylethanolamine N-methyltransferase, PNMT	PNMT	E
Phosphate regulating gene with homologies to endopeptidases on the X chromosome	PHEX	G
Phosphodiesterase 1 / nucleotide pyrophosphatase 1	PDNP1	G
Phosphodiesterase 1 / nucleotide pyrophosphatase 2	PDNP2	G
Phosphodiesterase 1 / nucleotide pyrophosphatase 3	PDNP3	G
Phosphofructokinase, muscle	PFKM	E
Phosphoglucose isomerase	GPI	Ε
Phosphoglycerate kinase 1	PGK1	E
Phosphoglycerate mutase 2	PGAM2	E
Phospholipase A2, group 10	PLA2G10	1
Phospholipase A2, group 1B	PLA2G1B	1
Phospholipase A2, group 2A	PLA2G2A	ł
Phospholipase A2, group 2B	PLA2G2B	1
Phospholipase A2, group 4A	PLA2G4A	1
Phospholipase A2, group 4C	PLA2G4C	i
Phospholipase A2, group 5	PLA2G5	1
Phospholipase A2, group 6	PLA2G6	1
Phosphomannomutase 2	PMM2	G
Phosphoribosyl pyrophosphate synthetase	PRPS1	E
Phosphorylase kinase, alpha 1 (muscle)	PHKA1	Ε
Phosphorylase kinase, beta	PHKB	Ε
Phosphorylase kinase, delta		E
Phosphorylase kinase, gamma 2	PHKG2	Е
Phytanoyl-CoA hydroxylase	PHYH	G
Pineolytic beta-receptors		Ε
Plakophilin 1	PKP1	Т
Plasminogen	PLG	E
Platelet derived growth factor	PDGF	G
Platelet derived growth factor receptor	PDGFR	G

Plectin 1 Potassium inwardly-rectifying channel J1 Potassium voltage-gated channel E1 Potassium voltage-gated channel Q1 Potassium voltage-gated channel Q2 Potassium voltage-gated channel Q3 POU domain, class 3, transcription factor 4 POU domain, class 4, transcription factor 3 Prion protein Procollagen N-protease Procollagen peptidase Prodynorphin Profibrinolysin Progesterone receptor (RU486 binding	PLEC1 KCNJ1 KCNE1 KCNQ1 KCNQ2 KCNQ3 POU3F4 POU4F3 PRNP	T N N N N N N N N N N N N N N N N N N N
receptor)		_
Prolactin receptor Prolactin releasing hormone Proliferin Proopiomelanocortin Properdin P factor, complement Prophet of Pit1 Propionyl-CoA carboxylase, alpha Prosaposin	PRLR PRH PLF POMC PFC, PFD PROP1 PCCA PSAP	0 0 0 Z - 0 E Z -
Prostacyclin synthase Prostaglandin 15-OH dehydrogenase Prostaglandin D - DP receptor Prostaglandin E1 receptor Prostaglandin E2 receptor Prostaglandin E3 receptor Prostaglandin F - FP receptor Prostaglandin F2 alpha receptor Prostaglandin I2 receptor Prostaglandin IP receptor	HGPD; PGDH	
Prostaglandin isomerase	DNO	E
Protease nexin 2 Protective protein for beta-galactosidase	PN2 PPGB	E
Protein C	PROC	Ī
Protein 6		1
Purine nucleoside phosphorylase Purinergic receptor P1A1 Purinergic receptor P1A2	NP	E N N
Purinergic receptor P1A3 Purinergic receptor P2X, 1 Purinergic receptor P2X, 2 Purinergic receptor P2X, 3 Purinergic receptor P2X, 4 Purinergic receptor P2X, 5 Purinergic receptor P2X, 6	P2RX1 P2RX2 P2RX3 P2RX4 P2RX5 P2RX6	Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z

Purinergic receptor P2X, 7	P2RX7	N
Purinergic receptor P2Y, 1	P2RY1	Ν
Purinergic receptor P2Y, 11	P2RY11	N
Purinergic receptor P2Y, 2	P2RY2	Ν
Pyrroline-5-carboxylate synthetase	PYCS	Ε
Pyruvate kinase	PKLR	Ε
Rabphilin		N
Radixin	RDX	S
RAS-associated protein, RAB3A	RAB3A	N
Rathke pouch homeobox, RPX	RPX	G
Receptor tyrosine kinase (RTK), Nsk2	NSK2	G
Retinal pigment epithelium specific protein	RPE65	S
(65kD)		
Retinitis pigmentosa gene 1	RP1	S
Retinitis pigmentosa gene 2	RP2	
Retinitis pigmentosa gene 3	RP3	S
Retinitis pigmentosa gene 6	RP6	S
Retinitis pigmentosa gene 7	RP7, RDS	S S S S
Retinoblastoma 1	RB1	G
Retinoic acid receptor, alpha	RARA	G
Retinoic acid receptor, beta	RARB	G
Retinoic acid receptor, gamma	RARG	G
Retinoid X receptor, alpha	RXRA	G
Retinoid X receptor, beta	RXRB	G
Retinoid X receptor, gamma	RXRG	G
Retinol binding protein 4	RBP4	T
Rhodopsin	RHO	S
RIGUI	RIGUI	G
Rim		N
Rod outer segment membrane protein 1	ROM1	S
Ryanodine receptor 1, skeletal	RYR1	G
Serotonin N-acetyltransferase	SNAT	Ε
Serotonin receptor, 5HT1A	HTR1A	Ν
Serotonin receptor, 5HT1B	HTR1B	Ν
Serotonin receptor, 5HT1C	HTR1C	N
Serotonin receptor, 5HT1D	HTR1D	N
Serotonin receptor, 5HT1E	HTR1E	N
Serotonin receptor, 5HT1F	HTR1F	N
Serotonin receptor, 5HT2A	HTR2A	N
Serotonin receptor, 5HT2B	HTR2B	N
Serotonin receptor, 5HT2C	HTR2C	N
Serotonin receptor, 5HT3	HTR3	N
Serotonin receptor, 5HT4	HTR4	N
Serotonin receptor, 5HT5	HTR5	N
Serotonin receptor, 5HT6	HTR6	N
Serotonin receptor, 5HT7	HTR7	N
Sex hormone binding globulin, SHBG	202	T
Sialoprotein, bone	BSP	G

Signal transducer and activator of transcription 1	STAT1	G
Signaling lymphocyte activation molecule	SLAM	ı
Sine oculis homeobox, drosophila, homolog 1		Ġ
Sine oculis homeobox, drosophila, homolog 7	SIY2	G
Sine oculis homeobox, drosophila, homolog 2	CIVE	
Sine oculis homeobox, drosophila, homolog 5		G
Sjoegren (Sjogren) syndrome antigen A1	SSA1	1
Slug protein	ONIDDA	G
Small nuclear ribonucleoprotein polypeptide	SNRPN	S
N		_
Smoothelin	SMTN	G
Smoothened (Drosophila) homolog	SMOH	G
Sodium channel, non-voltage gated 1, alpha	SCNN1A	Ν
Sodium channel, non-voltage gated 1, beta	SCNN1B	Ν
Sodium channel, non-voltage gated 1,	SCNN1G	Ν
gamma		
Sodium channel, voltage gated, type IV,	SCN4A	Ν
alpha polypeptide		
Sodium channel, voltage gated, type V, alpha	SCN5A	Ν
polypeptide		
Sodium channel, voltage-gated, type 1, beta	SCN1B	N
polypeptide		
Solute carrier family 1 (glutamate	SLC1A1	Т
transporter), member 1		
Solute carrier family 1 (glutamate	SLC1A2	Т
transporter), member 2		
Solute carrier family 12, member 1	SLC12A1	Т
Solute carrier family 12, member 2	SLC12A2	T
Solute carrier family 12, member 3	SLC12A3	Ť
Solute carrier family 15, member 5 Solute carrier family 16 (monocarboxylate	SLC16A1	Ť
transporter), member 1	02010/11	•
Solute carrier family 16 (monocarboxylate	SLC16A7	Т
*	SECTORI	•
transporter), member 7	SLC17A1	Т
Solute carrier family 17, member 1	SLC17A1	Ť
Solute carrier family 17, member 2		Ť
Solute carrier family 19 (folate transporter),	SLC19A1	i
member 1	01.004.40	~
Solute carrier family 21, member 2	SLC21A2	T
Solute carrier family 21, member 3	SLC21A3	T
Solute carrier family 25, member 12	SLC25A12	T
Solute carrier family 6 (GAMMA-	SLC6A1	Т
AMINOBUTYRIC ACID transporter), member		
1		
Solute carrier family 6 (neurotransmitter	SLC6A3	Т
transporter, dopamine), member 3		
Solute carrier family 6 (neurotransmitter	SLC6A2	Т
transporter, noradrenaline), member 2		
Solute carrier family 6, member 10	SLC6A10	T

Caluta ageriae family 6 mambae 9	SLC6A8	T
Solute carrier family 6, member 8	SLC7A1	T
Solute carrier family 7(amino acid	SLUTAT	Т
transporter), member 1	CI C740	
Solute carrier family 7(amino acid	SLC7A2	Т
transporter), member 2	01.0747	
Solute carrier family 7(amino acid	SLC7A7	Т
transporter), member 7		
Solute carrier family 8 (sodium/calcium	SLC8A1	T
exchanger), member 1		
Somatostatin	SST	N
Somatostatin receptor, SSTR1	SSTR1	N
Somatostatin receptor, SSTR2	SSTR2	G
Somatostatin receptor, SSTR3	SSTR3	N
Somatostatin receptor, SSTR4	SSTR4	N
Somatostatin receptor, SSTR5	SSTR5	N
Sonic hedgehog, SHH	SHH	G
Sorbitol dehydrogenase	SORD	Ε
Sorcin	SRI	Т
Spectrin alpha	SPTA1	S
Spectrin beta	SPTB	S
Sperm adhesion molecule	SPAM1	G
Sperm protamine P1	PRM1	G
Sperm protamine P2	PRM2	G
Sphingomyelinase	SMPD1	Е
Split hand/foot malformation gene	DSS1	G
SRY-box 10	SOX10	Ğ
SRY-box 11	SOX11	Ğ
SRY-box 3	SOX3	G
SRY-box 4	SOX4	Ğ
SRY-box 9	SOX9	G
Steroid 5 alpha reductase 1	SRD5A1	Ē
Steroid 5 alpha reductase 2	SRD5A2	E
Steroid sulphatase	STS	Ē
Substance P	•	N
Succinate dehydrogenase 1	SDH1	E
Succinate dehydrogenase 2	SDH2	Ē
Sulfamidase	SGSH	G
Superoxide dismutase 1	SOD1	Ē
Superoxide dismutase 3	SOD3	Ē
Survival of motor neuron 1, telomeric	SMN1	T
Synapsin 1a & 1b	SYN1	Ņ
Synapsin 2a & 2b	SYN2	N
Synaptic vesicle protein 2	SV2	N
Synaptobrevin 1	SYB1	N
Synaptobrevin 2	SYB2	N
Synaptogyrin	3102	N
Synaptogynn	SYP	N
· · · · ·	SNAP25	
Synaptosomal-associated protein, 25KD	SNAPZO	N

Synaptotagmin 1	SYT1	Ν
Synaptotagmin 2	SYT2	Ν
Synovial sarcoma gene 1	SSX1	G
Synovial sarcoma gene 2	SSX2	G
Syntaxin 1	STX1	N
Tachykinin receptor, NK1R	TACR1	Ν
Tachykinin receptor, NK2R	TACR2	Ν
Tachykinin receptor, NK3R	TACR3	Ν
Talin, TLN		S
T-BOX 1	TBX1	G
T-BOX 2	TBX2	G
T-BOX 3	TBX3	G
T-BOX 4	TBX4	G
T-BOX 5	TBX5	G
T-BOX 6	TBX6	G
TEK, tyrosine kinase, endothelial	TEK	Ε
Telomerase protein component		Ε
Tetranectin	TNA	Т
Thrombospondin	THBS1	G
Thromboxane A synthase 1	TBXAS1	1
Thromboxane A2	TXA2	ı
Thromboxane A2 receptor	TBXA2R	I
Thymosin		I
Thyrotropin releasing hormone	TRH	Ν
Thyrotropin releasing hormone	TRH	G
Thyrotropin releasing hormone receptor	TRHR	N.
Tip-associated protein	TAP	1
Tissue non-specific alkaline phosphatase		Ε
TNSAP		_
Titin	TTN	S
Tocopherol (alpha) transfer protein	TTPA	T
Torticollis, keloids, cryptorchidism and renal	TKCR	G
dysplasia gene	TOEA	^
Transforming growth factor, alpha	TGFA TGFB2	G
Transforming growth factor, beta 2		G G
Transforming growth factor, beta induced	TGFBI TGFBR2	G
Transforming growth factor, beta receptor 2	TGM1	G
Transglutaminase 1	TGM2	G
Transglutaminase 2	TGM4	G
Transglutaminase 4	TTR	T
Transthyretin	TCOF1	Ġ
Treacle gene	TPI1	E
Triosephosphate isomerase	TPM1	S
Tropomyosin 1 alpha	TPM3	S
Tropomyosin 3 (non-muscle)	11 1010	S
Troponin C Troponin I	TNNI3	S
Troponin T2, cardiac	TNNT2	S
Hopolini 12, Cardiac	1 1 41 4 1 4	5

Trypsinogen 1	TRY1	Ε
Trypsinogen 2	TRY2	E
Tubby-like protein 1	TULP1	G
Tuberous sclerosis 1	TSC1	G
Tuberous scierosis 2	TSC2	G
	TSG101	G
Tumor susceptibility gene 101	TRAF1	1
Tumour necrosis factor (TNF) receptor	IRAFI	1
associated factor 1	TDAE2	
Tumour necrosis factor (TNF) receptor	TRAF2	1
associated factor 2	TDAFO	
Tumour necrosis factor (TNF) receptor	TRAF3	1
associated factor 3	TDAEA	
Tumour necrosis factor (TNF) receptor	TRAF4	1
associated factor 4	TD 4 F F	
Tumour necrosis factor (TNF) receptor	TRAF5	1
associated factor 5	TD 4 50	
Tumour necrosis factor (TNF) receptor	TRAF6	ł
associated factor 6		
Tumour necrosis factor alpha	TNFA	1
Tumour necrosis factor alpha receptor	TNFAR	1
Tumour necrosis factor beta	TNFB	1
Tumour necrosis factor beta receptor	TNFBR	I
Tumour protein p53	TP53, P53	G
Tumour protein p63	TP63	G
Tumour protein p73	TP73	G
Tumour protein, translationally-controlled 1	TPT1	G
Tumour suppresssor gene DRA	DRA	1
Tyrosinase	TYR	E
Tyrosinase-related protein 1	TYRP1	Ε
Tyrosine aminotransferase	TAT	E
Ubiquitin activating enzyme, E1		E
Ubiquitin protein ligase E3A	UBE3A	E
Uncoupling protein 3	UCP3	T
Undulin 1	COL14A1	S
Uroporphyrinogen decarboxylase	UROD	E
Usher syndrome 2A	USH2A	S
Vacuolar proton pump, subunit 1	VPP1	Ν
Vacuolar proton pump, subunit 3	VPP3	N
Vascular endothelial growth factor	VEGF	G
Vasoactive intestinal polypeptide	VIP	Ν
Vasoactive intestinal polypeptide receptor	VIPR	Ν
Villin		S
Vinculin		S
Vitamin D receptor	VDR	G
Vitelliform macular dystrophy, atypical gene	VMD1	T
Von Hippel-Lindau gene	VHL	G
Von Willebrand factor	VWF	Т
Werner syndrome helicase	WRN	G

Winged helix nude	WHN	G
Wingless family, wnt2	WNT2	G
Wingless family, wnt4	WNT4	G
Wingless family, wnt5	WNT5	G
Wingless family, wnt7	WNT7	G
Wingless family, wnt8	WNT8	G
Wiskott-Aldrich syndrome protein	WASP, THC	1
Wnt inhibitory factor, WIF-1	WIF1	G
Wolf-Hirschhorn syndrome candidate 1 gene	WHSC1	G
Wolfram syndrome 1 gene	WFS1	S
Xeroderma pigmentosum, complementation	XPA	Ε
group A		
Xeroderma pigmentosum, complementation	XPB	Ε
group B		
Xeroderma pigmentosum, complementation	XPC	Ε
group C .		
Xeroderma pigmentosum, complementation		Ε
group D		
Xeroderma pigmentosum, complementation		Ε
group E		
Xeroderma pigmentosum, complementation	XPF	E
group F	ED005	_
Xeroderma pigmentosum, complementation	ERCC5	E
group G	VDCCC	_
X-ray repair gene	XRCC9	G

- 421.A set of probes, said probes being antibodies or antibody fragments which interact with specific expressed proteins encoded by gene sequences of a group of genes, said probes being for detecting relevant variants (mutations and polymorphisms), e.g. nucleotide substitutions (missense, nonsense, splicing and regulatory), small deletions, small insertions, small insertion deletions, gross insertions, gross deletions, duplications, complex rearrangements and repeat variations in a target group of genes; characterised in that said group is a core group of genes consisting of substantially all of the genes defined in claim 420.
- 422.A set according to claim 420 or 421 in which a minority of said probes for listed genes are absent.
- 423.A set according to claim 420 or 421 in which a limited number of additional probes are present together with substantially all of the probes for the listed genes.
- 424.A set according to claim 420 or 421 in which a limited number of probes are replaced by probes for non-listed genes.
- 425.A set of probes for a core group of genes according to any of claims 420 to 424 in which each gene to be probed is substantially similar (greater than 85% homologous) in sequence to the respective member of the core list of genes.

- 426.A set according to any of claims 420 to 425 consisting of probes for members of a sub-group of the core group.
- 427.A set according to any preceding claim in which said probes are in the form of an array and are spatially arranged at known locations on a substrate.
- 428.A set according to any preceding claim wherein said probes are on a substrate which forms part of or consists of one or more chip plate(s), for use in a chip assay for detection of said gene variants.
- 429.A set according to any preceding claim in which said probes are mass, electrostatic or fluorescence tagged probes.
- 430.A set according to claim 427 or 428 in which said substrate is a semiconductor microchip.
- 431.A set according to any preceding claim for use in a biological assay for detection of said gene variants.
- 432. A set according to any preceding claim for use in the measurement of differential gene expression levels.
- 433. A medical device including a set according to any preceding claim for use in an assay for detection of said gene variants.
- 434.A medical device including a set according to any of claims 420 to 432 for use in an array for detection of differential gene expression levels.
- 435. A method for use in assessing the genomic profile of a patient or individual, the method comprising testing for and detecting the presence or absence of DNA or RNA encoding the relevant structural variants (as defined in claim 420) in a target group of genes by hybridising a nucleic acid-containing sample from said patient or individual to a set according to any of claims 420 and 422 to 432 and relating the probe hybridisation pattern to said variations.
- 436. A method for use in assessing the the genomic profile of a patient or individual, the method comprising testing for and detecting the presence or absence of DNA or RNA encoding the relevant structural variants (as defined in claim 421) in a target group of genes by interacting an expressed-protein-containing sample from said patient or individual with a set of probes according to any of claims 421 to 432 and relating the probe interaction pattern to said variations.
- 437. Use of a set or device according to any of claims 420 to 432 for the prognosis and management of patients suffering from or at risk of experiencing the symptoms and consequences of dysfunction, damage or disease of the skin, muscle, connective tissue or bone.
- 438. Use of a set or device according to any of claims 420 to 432 for predicting likely therapeutic response and adverse events following therapeutic intervention.
- 439. Use of a set or device according to any of claims 420 to 432 for predicting likely therapeutic response and adverse events following the intake of a specific drug.
- 440. Use of a set or device according to any of claims 420 to 432 for predicting likely patterns of symptom clusters (symptom profiles) in disease and the likelihood of subsequent, contingent, disease or symptoms.
- 441. Use of a set or device according to any of claims 420 to 432 for general health screening, occupational health purposes, healthcare planning on a population basis and other healthcare management utilisations.
- 442. Use of a set or device according to any of claims 420 to 432 for the development of new strategies of therapeutic intervention and in clinical trials.

- 443. Use of a set or device according to any of claims 420 to 432 for construction of and generation of algorithms for patient and healthcare management.
- 444. Use of a set or device according to any of claims 420 to 432 for modelling or assessing the impact of diseases or healthcare management strategies on individuals, groups, patient cohorts or populations
- 445. Use of a set or device according to any of claims 420 to 432 for modelling, assessing or exploring the theoretical impact of diseases and healthcare management strategies on individuals, groups, patient cohorts or populations.
- 446. Use of a set or device according to any of claims 420 to 432 for predicting optimum configuration/management of thereapeutic intervention.
- 447.A method according to claim 435 or 436 in which the identification of gene variants is indicative of a higher risk of developing the symptoms and consequences of dysfunction, damage or disease of the skin, muscle, connective tissue or bone for the patient or individual.
- 448. A method for generating a model to assess whether a patient or individual or population or group is or are likely to develop the symptoms and consequences of dysfunction, damage or disease of the skin, muscle, connective tissue or bone, which method comprises:
- i) obtaining DNA or RNA or protein samples from patients or individuals diagnosed as suffering from the symptoms and consequences of dysfunction, damage or disease of the skin, muscle, connective tissue or bone;
- ii) obtaining DNA or RNA or protein samples from a control group of subjects diagnosed as not suffering from the the symptoms and consequences of dysfunction, damage or disease of the skin, muscle, connective tissue or bone;
- iii) analysing the samples obtained in i) and ii) to identify the polymorphic variations encoded in the core group of genes as defined in any of claims 420 to 426:
- iv) calculating the frequencies of these alleles in the samples from i) and ii);
- v) comparing the frequencies of these alleles in i) and ii);
- vi) performing a statistical analysis on the results from v) in order to generate a model for assessing the risk of developing the symptoms and consequences of dysfunction, damage or disease of the skin, muscle, connective tissue or bone.
- 449. A method for assessing whether a given subject will be at risk of developing symptoms, which comprises comparing said subject's genotype with a model generated by the method of claim 448.
- 450. A method according to any of claims 435, 436, 448 and 449 wherein at least one step is computer-controlled.
- 451. An assay suitable for use in a method according to any of claims 435, 436, 448 and 449; said assay comprising means for determining the presence or absence of relevant polymorphic variants of the core group of genes as defined in any of claims 420 to 426 in a biological sample.
- 452. A formatted assay technique (kit) for use in assessing the risk of a patient or individual developing the symptoms and consequences of dysfunction, damage or disease of the skin, muscle, connective tissue or bone; said kit comprising:
 - i) means for testing for the presence or absence or DNA or RNA encoding relevant polymorphic variants of the core group of genes as defined in claim 420 or 422 to 426 in a sample of human DNA;
 - ii) reagents for use in the detection process

- iii) readout indicating the probability of a patient or individual developing the symptoms and consequences of dysfunction, damage or disease of the skin, muscle, connective tissue or bone.
- 453. A formatted assay technique (kit) for use in assessing the risk of a patient or individual developing the symptoms and consequences of dysfunction, damage or disease of the skin, muscle, connective tissue or bone; said kit comprising:
 - i) means for testing for the presence or absence of proteins encoded by the core group of genes and/or relevant polymorphic variants of the core group of genes as defined in any of claims 421 to 426 in an expressed-protein-containing human sample;
 - ii) reagents for use in the detection process
 - iii) readout indicating the probability of a patient or individual developing the symptoms and consequences of dysfunction, damage or disease of the skin, muscle, connective tissue or bone.
- 454. A set of probes according to claim 420, wherein the probes are selected from the group consisting of oligonucleotides and polynucleotides.
- 455.A set of nucleotide probes for detecting relevant variants (mutations and polymorphisms), e.g. nucleotide substitutions (missense, nonsense, splicing and regulatory), small deletions, small insertions, small insertion deletions, gross insertions, gross deletions, duplications, complex rearrangements and repeat variations in a target group of genes which relate to endocrine and metabolic dysfunction, damage or disease; said probes being complementary to DNA and RNA sequences of said group of genes; characterised in that said group is a core group of genes consisting of substantially all of the following:

KEY TO 'PROTEIN FUNCTION' COLUMN

- E ENZYME
- T TRANSPORT & STORAGE
- S STRUCTURAL
- I IMMUNITY
- N NERVOUS TRANSMISSION
- G GROWTH & DIFFERENTIATION

METABOLIC & ENDOCRINE GENE LIST	HUGO gene symbol	Protein function
17beta hydroxysteroid dehydrogenase 1	HSD17B1	E
17beta hydroxysteroid dehydrogenase 3	HSD17B3	E
17beta hydroxysteroid dehydrogenase 4	HSD17B4	Ε
17beta hydroxysteroid oxidoreductase		E
17-ketosteroid reductase		N
18-hydroxysteroid oxidoreductase		E
2,3-bisphosphoglycerate mutase	BPGM	Ε
2,4-dienoyl CoA reductase	DECR	E
3 beta hydroxysteroid dehydrogenase 2	HSD3B2	E
3-oxoacid CoA transferase	OXCT	E

5-adenosyl homocysteine hydrolase 6-phosphofructo-2-kinase 6-pyruvoyltetrahydropterin synthase Acetoacetyl 1-CoA-thiolase Acetyl CoA acyltransferase Acetyl CoA carboxylase Acetyl CoA carboxylase alpha Acetylcholinesterase Acid phosphatase 2, lysosomal Actin, alpha, cardiac Actin, alpha, skeletal Actin, alpha, smooth, aortic Activin	PFKFB1 PTS ACAT1 ACAA ACC ACACA ACHE ACP2 ACTC ACTA1 ACTA2	
Activin A receptor, type 2B	ACVR2B	G G
Activin A receptor, type 2-like kinase 1	ACVRL1	Ğ
Acyl CoA dehydrogenase, long chain	ACADL	E
Acyl CoA dehydrogenase, medium chain	ACADM	E
Acyl CoA dehydrogenase, short chain	ACADS	E E E
Acyl CoA dehydrogenase, very long chain	ACADVL	
Acyl CoA synthetase, long chain, 1	LACS1	Ε
Acyl CoA synthetase, long chain, 2	LACS2	E
Acyl CoA synthetase, long chain, 4	ACS4	E
Acyl malonyl condensing enzyme Adenomatous polyposis coli tumour	APC	E
supressor gene	APC	G
Adenosine deaminase	ADA	Ε
Adenosine monophosphate deaminase	AMPD	E
Adenosine receptor A1	ADORA1	N
Adenosine receptor A2A	ADORA2A	N
Adenosine receptor A2B	ADORA2B	N
Adenosine receptor A3	ADORA3	N
Adenyl cyclase		Ν
Adenylate cyclase 1	ADCY1	Ε
Adenylate cyclase 2	ADCY2	Ε
Adenylate cyclase 3	ADCY3	Ε
Adenylate cyclase 4	ADCY4	E
Adenylate cyclase 5	ADCY5	E
Adenylate cyclase 6	ADCY6	E
Adenylate cyclase 7	ADCY7	E
Adenylate cyclase 8 Adenylate cyclase 9	ADCY8	E
Adenylate transferase	ADCY9	E E
ADP-ribosyltransferase	ADPRT	E
Adrenergic receptor, alpha1	ADRA1	N
Adrenergic receptor, alpha2	ADRA2	N
Adrenergic receptor, beta1	ADRB1	N
Adrenergic receptor, beta2	ADRB2	N
Adrenergic receptor, beta3	ADRB3	N

Adrenoleukodystrophy gene	ALD	Ε
Albumin, ALB	ALB	T
Alcohol dehydrogenase 1	ADH1	
Alcohol dehydrogenase 2	ADH2	EE
Alcohol dehydrogenase 3	ADH3	F
Alcohol dehydrogenase 4	ADH4	E
Alcohol dehydrogenase 5	ADH5	E
Alcohol dehydrogenase 6	ADH6	E
Alcohol dehydrogenase 7	ADH7	E
Aldehyde dehydrogenase 1	ALDH1	E
Aldehyde dehydrogenase 10	ALDH10	E
Aldehyde dehydrogenase 2	ALDH2	F
Aldehyde dehydrogenase 5	ALDH5	E
Aldehyde dehydrogenase 6	ALDH6	E
Aldehyde dehydrogenase 7	ALDH7	E
Aldolase A	ALDOA	E
Aldolase B	ALDOB	E
Aldolase C	ALDOC	E
Aldosterone receptor	MLR	G
Alkaline phosphatase, liver/bone/kidney	ALPL	T
Alkyigiycerone phosphate synthase	AGPS	
Alpha 1 acid glycoprotein	AAG; AGP	E
alpha1-antitrypsin	PI	Ė
alpha-actinin 2	ACTN2	G
alpha-actinin 3	ACTN3	G
alpha-amino adipic semialdehyde synthase		E
alpha-glucosidase, neutral AB	GANAB	E
alpha-glucosidase, neutral C	GANC	E
alpha-ketoglutarate dehydrogenase		F
Aminomethyltransferase	AMT	E
Aminopeptidase P	XPNPEP2	E
Amphiregulin	AREG	G
Amylo-1,6-glucosidase	AGL	E
Androgen receptor	AR	G
Angiopoietin 1	ANGPT1	Ğ
Angiopoietin 2	ANGPT2	Ğ
Angiotensin converting enzyme	ACE, DCP1	E
Angiotensin receptor 1	AGTR1	T
Angiotensin receptor 2	AGTR2	Ť
Angiotensinogen	AGT	Ė
Anti-Mullerian hormone	AMH	G
Anti-Mullerian hormone type 2 receptor	AMHR2	Ğ
Apolipoprotein A I	APOA1	T
Apolipoprotein A II	APOA2	Ť
Apolipoprotein B	APOB	Ť
Apolipoprotein C1	APOC1	Ť
Apolipoprotein C2	APOC2	Ť
Apolipoprotein C3	APOC3	Ť
•		•

Apolipoprotein D	APOD	Т
Apolipoprotein E	APOE	T
Apolipoprotein H	APOH	T
Aquaporin 1	AQP1	T
Aquaporin 2	AQP2	T.
Arginine vasopressin	AVP	Ν
Arginine vasopressin receptor 1A	AVPR1A	Ν
Arginine vasopressin receptor 1B	AVPR1B	Ν
Arginine vasopressin receptor 2	AVPR2	Ν
Asparagine synthetase	AS	Ε
Aspartate transcarbamoylase		Ε
Ataxia telangiectasia complementation group	ATD, ATDC	G
D		
Ataxia telangiectasia gene, AT	ATM	G
ATP cobalamin adenoxyltransferase		E
Atrial natriuretic peptide	ANP	G
Atrial natriuretic peptide receptor A	NPR1	G
Atrial natriuretic peptide receptor B	NPR2	G
Atrial natriuretic peptide receptor C	NPR3	G
Attractin		1
Autoimmune regulator, AIRE	AIRE	I
beta-endorphin receptor		Ν
beta-galactosidase	GLB1	Ε
beta-ketoacyl reductase		Ε
Bile acid coenzyme A: amino acid N-	BAAT	Ε
acyltransferase		
Bile sait export pump	BSEP, PFIC2	T
Bile salt-stimulated lipase	CEL	E
Bilirubin UDP-glucuronosyltransferase		E
Bloom syndrome protein	BLM	G
Bradykinin receptor B1		1
Bradykinin receptor B2		I
Branched chain aminotransferase 1, cytosolic		Ε
Branched chain aminotransferase 2,	BCAT2	Ε
mitochondrial		
Branched chain keto acid dehydrogenase E1,	BCKDHA	Ε
alpha polypeptide		
Branched chain keto acid dehydrogenase E1,	BCKDHB	Ε
beta polypeptide		
Butyrylcholinesterase	BCHE	Ε
C17-20 desmolase		E
C3 convertase		Ε
Calbindin 1	CALB1	G
Calbindin D9K	CALB3	G
Calcineurin A1	CALNA1	ı
Calcineurin A2	CALNA2	-
Calcineurin A3	CALNA3	1
Calcineurin B		1

Calcitonin receptor /Calcitonin gene-related peptide receptor	CALCR	N
Calcitonin/Calcitonin gene-related peptide	CALCA	N
alpha Calcium channel, voltage-dependent, alpha	CACNA1F	N
1F subunit		•
Calcium channel, voltage-dependent, Alpha-1B (CACNL1A5)	CACNA1B	Ν
Calcium channel, voltage-dependent, Alpha-1C	CACNA1C	Ν
Calcium channel, voltage-dependent, Alpha- 1D	CACNA1D	N
Calcium channel, voltage-dependent, Alpha-	CACNA1E	Ν
1E (CACNL1A6) Calcium channel, voltage-dependent, Alpha-	CACNA2	N
2/delta	ONOTAL	IN
Calcium channel, voltage-dependent, Beta 1	CACNB1	Ν
Calcium channel, voltage-dependent, Beta 3		Ν
Calcium channel, voltage-dependent, L type, alpha 1S subunit	CACNA1S	Ν
Calcium channel, voltage-dependent,	CACNG2	Ν
Neuronal, Gamma		
Calcium channel, voltage-dependent, P/Q type, alpha 1A subunit	CACNA1A	Ν
Calcium channel, voltage-dependent, T-type		Ν
Calcium sensing receptor	CASR	T
Calmodulin 1	CALM1	Ġ
Calmodulin 2	CALM2	Ğ
Calmodulin 3	CALM3	Ğ
Calmodulin-dependant protein kinase II	CAMK2A	Ğ
Calnexin	CANX	Ğ
Calpain	CAPN, CAPN3	Ē
Calretinin	CALB2	N
Canalicular multispecific organic anion	CMOAT	Т
transporter		
Cannabinoid receptor	CNR1	Ν
Carbonic anhydrase 3	CA3	Ε
Carbonic anhydrase 4	CA4	Ε
Carbonic anhydrase, alpha	CA1	Ε
Carbonic anhydrase, beta	CA2	Ε
Carboxylesterase 1	CES1	Ε
Cardiac-specific homeobox, CSX	CSX	G
Carnitine acetyltransferase	CRAT	Ε
Carnitine acylcarnitine translocase	CACT	Ε
Carnitine palmitoyltransferase I	CPT1A	E
Carnitine palmitoyltransferase II	CPT2	E
Carnitine transporter protein	CDSP, SCD	T
Carnosinase		N

Cartilage-hair hypoplasia gene Catechol-O-methyltransferase Cell adhesion molecule, intercellular, ICAM Cell adhesion molecule, leukocyte- endothelial, LECAM (CD62)	CHH COMT ICAM1 LECAM1	NEGG
Cell adhesion molecule, liver, LCAM Cell adhesion molecule, neural, NCAM1 Cell adhesion molecule, neural, NCAM120 Cell adhesion molecule, neural, NCAM2 Cell adhesion molecule, platelet-endothelial,	LCAM NCAM1 NCAM120 NCAM2 PECAM1	66666
PECAM Cell adhesion molecule, vascular, VCAM c-erbB2 c-erbB3 c-erbB4 Chitotriosidase Cholecystokinin Cholecystokinin B receptor Cholesterol ester hydroxylase	VCAM1 ERBB2 ERBB3 ERBB4 chit CCK CCKBR	GGGGEZZE
Cholesterol ester frydroxylase Chromogranin A Chymase Citrate synthase	CETP CHAT CHGA CHY1	TEGE
Clathrin Clusterin CoA transferase	CLU	TGES
Collagen IV alpha 5 Collagen IV alpha 6 Complex III	COL4A5 COL4A6	S E
Complex V Corticosteroid binding globulin Corticotrophin-releasing hormone Corticotrophin-releasing hormone receptor Cortisol receptor	MTATP6 CBG CRH CRHR1	ENTTI
Cubilin Cyclic AMP-dependent protein kinase Cyclic nucleotide phosphodiesterase 1B Cyclic nucleotide phosphodiesterase 1B1 Cyclic nucleotide phosphodiesterase 2A3 Cyclic nucleotide phosphodiesterase 3A Cyclic nucleotide phosphodiesterase 3B Cyclic nucleotide phosphodiesterase 4A Cyclic nucleotide phosphodiesterase 4C Cyclic nucleotide phosphodiesterase 5A	CUBN PKA PDE1B PDE1B1 PDE2A3 PDE3A PDE3B PDE4A PDE4C PDE5A	
Cyclic nucleotide phosphodiesterase 6A Cyclic nucleotide phosphodiesterase 6B Cyclic nucleotide phosphodiesterase 7	PDE6A PDE6B PDE7	E

Cyclic nucleotide phosphodiesterase 8 Cyclic nucleotide phosphodiesterase 9A	PDE8 PDE9A	E
Cyclin-dependent kinase inhibitor 1C (P57,	CDKN1C	G
KIP2)	CDKN2A	_
Cyclin-dependent kinase inhibitor 2A (p16) Cyclooxygenase 1	COX1	G
Cyclooxygenase 2	COX1	E
CYP11A1	CYP11A1	E
CYP11B1	CYP11B1	E
CYP11B2	CYP11B2	Ē
CYP17	CYP17	E
CYP19	CYP19	Ē
CYP1A1	CYP1A1	Ε
CYP1A2	CYP1A2	Ε
CYP1B1	CYP1B1	Ε
CYP21	CYP21	E
CYP24	CYP24	E
CYP27	CYP27	Ε
CYP27B1	PDDR	Ε
CYP2A1	CYP2A1	Ε
CYP2A13	CYP2A13	E
CYP2A3	CYP2A3	Ε
CYP2A6V2	CYP2A6V2	E
CYP2A7	CYP2A7 CYP2B6	E
CYP2B6 CYP2C18	CYP2C18	E
CYP2C19	CYP2C19	E
CYP2C8	CYP2C8	E
CYP2C9	CYP2C9	E
CYP2D6	CYP2D6	Ē
CYP2E1	CYP2E1	Ē
CYP2F1	CYP2F1	Ε
CYP2J2	CYP2J2	Ε
CYP3A3	CYP3A3	Ε
CYP3A4	CYP3A4	Ε
CYP3A5	CYP3A5	Ε
CYP3A7	CYP3A7	E
CYP4A11	CYP4A11	Ε
CYP4B1	CYP4B1	E
CYP4F2	CYP4F2	E
CYP4F3	CYP4F3	E
CYP51	CYP51	E
CYP5A1	CYP5A1	E
CYP7A CYP8	CYP7A CYP8	EEE
	CTH	
Cystathionase Cystathione beta synthase	CBS	E
Cystic fibrosis transmembrane conductance	CFTR	N
Cyone herosis transmicinoralic conductance	OI III	1.4

regulator, CFTR		
Cystinosin	CTNS	Ţ
Cytidine deaminase	CDA .	Ε
Cytidine-5-prime-triphosphate synthetase	CTPS	Ε
Cytochrome a		Ε
Cytochrome c		E
Cytochrome c oxidase, MTCO		E
Cytokine-suppressive antiinflammatory drug-	CSBP1	Ī
binding protein 1		•
Cytokine-suppressive antiinflammatory drug-	CSBP2	i
binding protein 2		
DAX1 nuclear receptor	DAX1	1
D-beta-hydroxybutyrate dehydrogenase		Ε
Dehydratase		E
Delta 4-5 oxosteroid isomerase		Ε
Delta aminolevulinate synthase 1	ALAS1	Ε
Delta aminolevulinate synthase 2	ALAS2	E
Deoxycorticosterone (DOC) receptor		E
Deoxyuridine triphosphatase; dUTPase		Ε
DHEA sulfotransferase	STD	Ε
Dihydrodiol dehydrogenase 1	DDH1	Ε
Dihydrolipoamide branched chain	DBT	Ν
transacylase		
Dihydrolipoamide dehydrogenase	DLD	Ν
Dihydrolipoyl dehydrogenase 2	PDHA	Ε
Dihydrolipoyl transacetylase	PDHA	Ε
Dihydroorotase		Ε
Dihydropyramidinase	DPYS	Ε
Dihydroxyacetonephosphate acyltransferase	DHAPAT	Ε
Dihyropyrimidine dehydrogenase	DPYD	Ε
DNA glycosylases		Ε
DNA helicases		Ε
DNA Ligase 1	LIG1	Ε
DNA methyltransferase	DNMT	Ε
DOPA decarboxylase	DDC	Ε
Dopamine beta hydroxylase	DBH	Ε
Dopamine receptors D1	DRD1	Ν
Dopamine receptors D2	DRD2	Ν
Dopamine receptors D3	DRD3	Ν
Dopamine receptors D4	DRD4	N
Dopamine receptors D5	DRD5	Ν
Dynamin	DNM1	G
Electron-transfering-flavoprotein alpha	ETFA	T
Electron-transfering-flavoprotein beta	ETFB	T
Electron-transferring flavoprotein	ETFDH	Ε
dehydrogenase		_
Endometrial bleeding-associated factor	EBAF	G
Endothelin converting enzyme	ECE1	Ν

Endothelin receptor type A Endothelin receptor type B Enolase Enoyl CoA reductase Enterokinase Ephrin receptor tyrosine kinase A Ephrin receptor tyrosine kinase B Epidermal growth factor Epidermal growth factor receptor Erythropoietin Estrogen receptor Excision repair complementation group 1 protein	EDNRA EDNRB ENO1 PRSS7, ENTK EPHA EPHB EGF EGFR EPO ESR ERCC1	Z Z E E E G G G G - G E
Factor 1 (No. one)	F1	1
FADH dehydrogenase		Ε
Fatty acid binding proteins FABP2	FABP2	T
Fc fragment of IgG, high affinity IA, receptor for	FCGR1A	G
Fc fragment of IgG, low affinity IIa, receptor for (CD32)	FCGR2A	G
Fc fragment of IgG, low affinity Illa, receptor for (CD16)	FCGR3A	G
Ferritin, H subunit		Т
Ferritin, L subunit	FTL	Ť
Fibrinogen alpha	FGA	S
Fibrinogen beta	FGB	S
Fibrinogen gamma	FGG	S
Fibroblast growth factor	FGF1	G
Fibroblast growth factor receptor 1	FGFR1	G
Fibroblast growth factor receptor 2	FGFR2	G
Fibroblast growth factor receptor 3	FGFR3	G
Flavin-containing monooxygenase 1	FMO1	E
Flavin-containing monooxygenase 2	FMO2	E
Flavin-containing monooxygenase 3	FMO3	Ε
Flavin-containing monooxygenase 4	FMO4	E
Follicle stimulating hormone receptor	FSHR, ODG1	G
Follicle stimulating hormone, FSH Follistatin	FSHB	G G
Frataxin	FRDA	G
Fructose-1,6-diphosphatase	FBP1	E
Fumarase	FH	E
Fumarylacetoacetase	FAH	Ē
GABA receptor, alpha 1	GABRA1	N
GABA receptor, alpha 2	GABRA2	N
GABA receptor, alpha 3	GABRA3	Ν
GABA receptor, alpha 4	GABRA4	Ν
GABA receptor, alpha 5	GABRA5	Ν
GABA receptor, alpha 6	GABRA6	Ν

GABA receptor, beta 1	GABRB1	N
GABA receptor, beta 2		N
GABA receptor, beta 3		Ν
GABA receptor, gamma 1		N
GABA receptor, gamma 2		N
GABA receptor, gamma 3		N
GABA transaminase	ABAT	Ε
Galactocerebrosidase	GALC	Ε
Galactokinase	GALK1	Е
Galactose 1-phosphate uridyl-transferase	GALT	Ε
Galanin	GAL	N
Galanin receptor	GALNR1	N
Gamma-glutamyl carboxylase	GGCX	Т
Gamma-glutamyltransferase 1	GGT1	Т
Gamma-glutamyltransferase 2	GGT2	Т
Gap junction protein beta 1	GJB1	Т
Gap junction protein beta 3	GJB3	Т
Gastric inhibitory polypeptide GIP	GIP	Т
Gastric inhibitory polypeptide receptor, GIPR	GIPR	Т
Gastric Intrinsic factor, GIF	GIF	Ε
Gastric lipase, LIPF		Т
Gastrin	GAS	G
Gastrin releasing peptide	GRP	T
Gastrin releasing peptide receptor	GRPR	T
Glucagon receptor	GCGR	G
Glucagon synthase		Т
Glucagon-like peptide receptor 1	GLP1R	G
Glucocorticoid receptor	GRL	G
Glucokinase	GCK	Е
Glucosaminyl (N-acetyl) transferase 2, I-	GCNT2	Ε
branching enzyme		
Glucose-6-phosphatase	G6PC	Ε
Glucose-6-phosphatase translocase	G6PT1	Ε
Glucose-6-phosphate dehydrogenase	G6PD	Ε
Glucosidase, acid beta		E
Glutamate decarboxylase, GAD	GAD1	Ε
Glutamate dehydrogenase		Ε
Glutamine phosphoribosylpyrophosphate		Ε
amidotransferase/PRPP amidotransferase		
Glutamine synthase		Ε
Glutathione	GSH	T
Glutathione peroxidase, GPX2	GPX2	Ε
Glutathione reductase, GSR	GSR	E
Glutathione S-transferase, GSTZ1	GSTZ1	Ε
Glutathione synthetase	GSS	Ε
Glyceraldehyde-3-phosphate dehydrogenase,	GAPDH	Ε
GAPDH		
Glycerol kinase	GK	Ε

Glycerophosphate dehydrogenase 2 Glycinamide ribonucleotide (GAR) transformylase	GPD2 GART	E
Glycine dehydrogenase	GLDC	Ε
Glycogen branching enzyme	GBE1	Ē
Glycogen phosphorylase	PYGL	E
Glycogen synthase 1 (muscle)	GLYS1	E
Glycogen synthase 2 (liver)	GYS2	Ε
Glycosyltransferases, ABO blood group	ABO	Ε
Gonadotropin releasing hormone	GNRH	G
Gonadotropin releasing hormone receptor	GNRHR	G
Growth arrest-specific homeobox	GAX	G
Growth hormone 1	GH1	G
Growth hormone 2 (placental)	GH2	G
Growth hormone receptor	GHR	G
Growth hormone releasing hormone (GHRH)	GHRH	G
Growth hormone releasing hormone receptor	GHRHR	G
GTP cylcohydrolase 1	GCH1	G
GTPase-activating protein, GAP	RASA1	G
Guanidinoacetate N-methyltransferase	GAMT	E
Guanine nucleotide-binding protein, alpha	GNAO1	Ν
activating activity polypeptide, GNAO		
Guanine nucleotide-binding protein, alpha	GNAI1	Ν
inhibiting activity polypeptide 1, GNAI1		
Guanine nucleotide-binding protein, alpha	GNAI2	Ν
inhibiting activity polypeptide 2, GNAI2		
Guanine nucleotide-binding protein, alpha	GNAI3	Ν
inhibiting activity polypeptide 3, GNAI3	011404	
Guanine nucleotide-binding protein, alpha	GNAS1	Ν
stimulating activity polypeptide, GNAS1	CNACO	
Guanine nucleotide-binding protein, alpha	GNAS2	Ν
stimulating activity polypeptide, GNAS2	CNASS	N.I.
Guanine nucleotide-binding protein, alpha	GNAS3	Ν
stimulating activity polypeptide, GNAS3	CNACA	N.I.
Guanine nucleotide-binding protein, alpha stimulating activity polypeptide, GNAS4	GNAS4	Ν
Guanine nucleotide-binding protein, alpha	GNAT1	NI.
transducing activity polypeptide, GNAT1	GNATI	Ν
Guanine nucleotide-binding protein, alpha	GNAT2	Ν
transducing activity polypeptide, GNAT2	GNATZ	IN
Guanine nucleotide-binding protein, beta	GNB3	Ν
polypeptide 3	GNB3	14
Guanine nucleotide-binding protein, gamma	GNG5	Ν
polypeptide 5	01100	14
Guanine nucleotide-binding protein, q	GNAQ	Ν
polypeptide	OI WIG	1.4
Guanylate cyclase 2D, membrane (retina-	GUCY2D	Ε
specific)		_
•		

Guanylate cyclase activator 1A (retina)	GUCA1A	Ε
Guanylate kinase		Ε
Guanylin	GUCA2	T
Guanylyl cyclase		Ε
Heat shock protein, HSP60		1
Heat shock protein, HSP70		1
Heat shock protein, HSP90		l
Heat shock protein, HSPA1		1
Heat shock protein, HSPA2		-
Hemopexin	HPX	1
Heparin binding epidermal growth factor	HBEGF	G
Hepatic lipase	LIPC	Ε
Hepatic nuclear factor-3-beta	HNF3B	Ε
Hepatic nuclear factor-4-alpha	HNF4A	Ε
Hexokinase 1	HK1	Ε
Hexokinase 2	HK2	Ε
Hexosaminidase A	HEXA,TSD	Ε
Hexosaminidase B	HEXB	Ε
Histamine receptors, H1		N
Histamine receptors, H2		N
Histamine receptors, H3		Ν
HMG-CoA lyase	HMGCL	E
HMG-CoA reductase	HMGCR	Ε
HMG-CoA synthase	HMGCS2	E
Holocarboxylase synthetase	HLCS	E
Holoprosencephaly 1	HPE1	G
Holoprosencephaly 2	HPE2	G
Holoprosencephaly 3	HPE3	G
Holoprosencephaly 4	HPE4	G
Homeobox (HOX) gene A13	HOXA13	G
Hormone-sensitive lipase	HSL	E
HSSB, replication protein		E
Human chorionic gonadtrophin, hCG	CG	G
Human placental lactogen	CSH1	G
Hydroxyacyl glutathione hydrolase	HAGH	E
Hypoxanthine-guanine	HPRT	E
phosphoribosyltransferase, HGPRT	1 11 C 4 A	_
Hypoxia inducible factor 1	HIF1A	E
Hypoxia inducible factor 2	100	E
Iduronate 2 sulphatase	IDS	
Immunoglobulin E (IgE) reponsiveness gene	IGER	1
Immunoglobulin E (IgE) serum concentration	IGES	l
regulator gene	101100	
Immunoglobulin gamma (IgG) 2	IGHG2	
Indian hedgehog, ihh	IHH	G
Inhibin, alpha	INHA	G
Inhibin, beta A	INHBA	G
Inhibin, beta B	INHBB	G

Inhibin, beta C	INHBC	G
Inosine monophosphate dehydrogenase, IMPDH		E
Inosine triphosphatase	ITPA	Ε
Inositol 1,4,5-triphosphate receptor 1	ITPR1	G
Inositol monophosphatase	IMPA1	N
Inositol polyphosphate 1-phosphatase	INPP1	N
Insulin	INS	G
Insulin receptor	INSR	G
Insulin receptor substrate-1	IRS1	G
Insulin-like growth factor 1	IGF1	G
Insulin-like growth factor 1 receptor	IGF1R	G
Insulin-like growth factor 2	IGF2	
Insulin-like growth factor 2 receptor	IGF2R	G
Integrin beta 1	ITGB1	G
	ITGB2	G
Integrin beta 2 Interleukin(IL) 1 receptor		G
, ,	IL1R	i
Interleukin(IL) 1, alpha	IL1A	i
Interleukin(IL) 1, beta	IL1B	1
Interleukin(IL) 10	IL10	!
Interleukin(IL) 10 receptor	IL10R	
Interleukin(IL) 11	IL11	
Interleukin(IL) 11 receptor	IL11R	
Interleukin(IL) 12	IL12	1
Interleukin(IL) 12 receptor, beta 1	IL12RB1	1
Interleukin(IL) 13	IL13	- !
Interleukin(IL) 13 receptor	IL13R	!
Interleukin(IL) 2	IL2	ĺ
Interleukin(IL) 2 receptor, alpha	IL2RA	!
Interleukin(IL) 2 receptor, gamma	IL2RG	1
Interleukin(IL) 3	IL3	1
Interleukin(IL) 3 receptor	IL3R	
Interleukin(IL) 4	IL4	1
Interleukin(IL) 4 receptor	IL4R	i
Interleukin(IL) 5	IL5	!
Interleukin(IL) 5 receptor	IL5R	ı
Interleukin(IL) 6	IL6	!
Interleukin(IL) 6 receptor	IL6R	ı
Interleukin(IL) 7	IL7	!
Interleukin(IL) 7 receptor	IL7R	1
Interleukin(IL) 8	IL8	l
Interleukin(IL) 8 receptor	IL8R	!
Interleukin(IL) 9	IL9	1
Interleukin(IL) 9 receptor	IL9R	!
Interleukin(IL) receptor antagonist 1	IL1RN, IL1RA	
lodothyronine-5'-deiodinase, type 1 and 2		E
IP3 kinase	LADD	E
Islet amyloid polypeptide	IAPP	Ν

Isocitrate dehydrogenase		Ε
Isovaleric acid CoA dehydrogenase	IVD	Ē
Janus kinase 1	JAK1	Ğ
Janus kinase 2	JAK2	Ğ
Janus kinase 3	JAK3	Ğ
Kallman syndrome gene 1	KAL1	Ğ
Ketohexokinase	KHK	Ē
ketolase		E
Lactase		Ē
Lactotransferrin	LTF	T
Laminin 5, alpha 3	LAMA3	Ġ
Laminin 5, beta 3	LAMB3	G
Laminin receptor 1	LAMR1	Ğ
Lecithin-cholesterol acyltransferase	LCAT	E
Leptin	LEP	G
Leptin receptor	LEPR	Ğ
Leukotriene C4 synthase	LTC4S	E
LH/choriogonadotropin (CG) receptor	LHCGR	Ğ
Lipoamide dehydrogenase	OGDH	E
Lipoprotein lipase	LPL	ī
Lipoprotein, High Density	.HDLDT1	T
Lipoprotein, Intermediate Density		T
Lipoprotein, Low Density 1		Т
Lipoprotein, Low Density 2		Т
Lipoprotein, Very Low Density	VLDLR	Т
Lipoprotein-associated coagulation factor	LACI	1
Lipoxygenase		Ε
Lipoxygenase 12 (platelets)	LOG12	- 1
Lipoxygenase 5 (leukocytes)		- 1
Luteinizing hormone, beta chain	LHB	G
Lymphocyte-specific protein tyrosine kinase	LCK	1
Lysosomal acid lipase	LIPA	Ε
MAD (mothers against decapentaplegic,	MADH2	G
Drosophila) homologue 2		
Malate dehydrogenase, mitochondrial	MDH2	E
Malonyl CoA decarboxylase		Ε
Malonyl CoA transferase		Ε
Maltase-glucoamylase		Ε
Mannosidase, alpha B lysosomal	MANB	Ε
Mannosyl (alpha-1,6-)-glycoprotein beta-1, 2-	MGAT2	Т
N-acetylglucosaminyltransferase		
Marenostrin	MEFV	T
Matrix Gla protein	MGP	G
MEK kinase, MEKK		Ε
Melanocortin 2 receptor	MC2R	Т
Melanocortin 4 receptor	MC4R	T
Menin	MEN1	G
Methionine adenosyltransferase	MAT1A, MAT2A	E

Methionine synthase Methionine synthase reductase Methylguanine-DNA methyltransferase Methylmalonyl-CoA mutase Mitochondrial trifunctional protein, alpha subunit	MTR MTRR MGMT MUT HADHA	E E E E
Mitochondrial trifunctional protein, beta	HADHB	Е
subunit Molybdenum cofactor synthesis 1 Molybdenum cofactor synthesis 2 Monoamine oxidase A Monoamine oxidase B Multidrug resistance associated protein Muscarinic receptor, M1 Muscarinic receptor, M2 Muscarinic receptor, M3 Muscarinic receptor, M4 Muscarinic receptor, M5 Muscarinic receptor, M5 Muscle phosphorylase Na+, K+ ATPase, alpha Na+, K+ ATPase, beta 1 Na+, K+ ATPase, beta 2 Na+, K+ ATPase, beta 3 Na+/H+ exchanger 1 Na+/H+ exchanger 2 Na+/H+ exchanger 3 Na+/H+ exchanger 4 Na+/H+ exchanger 5 N-acetyltransferase 1 N-acetyltransferase 2 NADH dehydrogenase (ubiquinone) Fe-S protein 1	MOCS1 MOCS2 MAOA MAOB MRP CHRM1 CHRM2 CHRM3 CHRM4 CHRM5 PYGM ATP1A1 ATP1B1 ATP1B1 ATP1B2 ATP1B3 NHE1 NHE2 NHE3 NHE4 NHE5 NAT1 NAT2 NDUFS1	шшшшбхххххшббббтттттшшш .
NADH dehydrogenase (ubiquinone) Fe-S protein 4	NDUFS4	E
NADH dehydrogenase (ubiquinone) flavoprotein 1	NDUFV1	E
NADH-cytochrome b5 reductase NADPH-dependent cytochrome P450 reductase	DIA1 POR	E E
Nephronophthisis 1 Nerve growth factor Nerve growth factor receptor Neuraminidase sialidase Neuregulin Neuroendocrine convertase 1 Neurofibromin 1 Neurofibromin 2	NPHP1 NPHS1 NGF NGFR NEU HGL NEC1, PCSK1 NF1 NF2	T T G G T G E G G

Neuropeptide Y	NPY	N
Neuropeptide Y receptor Y1	NPY1R	N
Neuropeptide Y receptor Y2	NPY2R	N
Neurotensin	NTS	N
Neurotensin receptor	NTSR1	N
Neurotrophin 3	NTF3 or NT3	G
Neutral endopeptidase	11110011110	E
Niemann-Pick disease protein	NPC1	T
	NOS1	Ė
Nitric oxide synthase 1, NOS1	NOS2	E
Nitric oxide synthase 2, NOS2	NOS3	E
Nitric oxide synthase 3, NOS3	JAG1, AGS	G
Notch ligand - jagged 1	NDPKA	E
Nucleoside diphosphate kinase-A	RET	
Oncogene ret		G
Oncogene sis	PDGFB	G
Orexin	OX	G
Orexin 1 receptor	OX1R	G
Orexin 2 receptor	OX2R	G
Ornithine delta-aminotransferase	OAT	E
Ornithine transcarbamoylase	OTC, NME1	E
Oxytocin	OXT	N
Oxytocin receptor	OXTR	N
Paired box homeotic gene 6	PAX6	G
Paired box homeotic gene 8	PAX8	G
Palmitoyl-protein thioesterase	PPT	Ţ
Pancreatic lipase	PNLIP	E
Paraoxonase PON1	PON1	E
Paraoxonase PON2	PON2	Ε
Paraoxonase PON3		E
Parathyroid hormone	PTH	G
Parathyroid hormone receptor	PTHR1	G
Parathyroid hormone related-peptide	PTHrP	G
Parathyroid hormone-like hormone	PTHLH	G
Peanut-like 1	PNUTL1	1
Peptidylglycine alpha-amidating	PAM	Ε
monooxygenase		
Peroxidase, salivary	SAPX	E
Peroxisomal membrane protein 3	PXMP3	T
Peroxisome biogenesis factor 1	PEX1	T
Peroxisome biogenesis factor 19	PEX19	T
Peroxisome biogenesis factor 6	PEX6	Т
Peroxisome biogenesis factor 7	PEX7	Т
Peroxisome proliferative activated receptor,	PPARA	Т
alpha		
Peroxisome proliferative activated receptor,	PPARG	T
gamma		
P-glycoprotein 1	PGY1	Т
P-glycoprotein 3	PGY3	Т

Phenylalanine hydroxylase	PAH	Ε
Phenylalanine monooxygenase		E
Phenylethanolamine N-methyltransferase,	PNMT	Ε
PNMT		
Phosphodiesterase 1 / nucleotide	PDNP1	G
pyrophosphatase 1		
Phosphodiesterase 1 / nucleotide	PDNP2	G
pyrophosphatase 2		
Phosphodiesterase 1 / nucleotide	PDNP3	G
pyrophosphatase 3		
Phosphoenolpyruvate carboxykinase	PCK1	Ε
Phosphofructokinase, liver	PFKL	E
Phosphofructokinase, muscle	PFKM	m m m m m
Phosphoglucomutase		Ε
Phosphoglucose isomerase	GPI	E
Phosphoglycerate kinase 1	PGK1	E
Phosphoglycerate mutase 2	PGAM2	E
Phospholipase A2, group 10	PLA2G10	1
Phospholipase A2, group 1B	PLA2G1B	1
Phospholipase A2, group 2A	PLA2G2A	1
Phospholipase A2, group 2B	PLA2G2B	1
Phospholipase A2, group 4A	PLA2G4A	ı
Phospholipase A2, group 4C	PLA2G4C	ļ
Phospholipase A2, group 5	PLA2G5	!
Phospholipase A2, group 6	PLA2G6	!
Phospholipase C alpha		!
Phospholipase C beta	DI 004	ļ
Phospholipase C delta	PLCD1	1
Phospholipase C epsilon	DI 004	ļ
Phospholipase C gamma	PLCG1	ı
Phosphomannomutase 2	PMM2	G
Phosphomannomutase-2	PMM2	T
Phosphomannose isomerase-1, PMI1	MPI	Ţ
Phosphoribosyl pyrophosphate synthetase	PRPS1	Ē
Phosphorylase kinase deficiency, liver	PHK	E
Phosphorylase kinase, alpha 1 (muscle)	PHKA1	E
Phosphorylase kinase, alpha 2	PHKA2	E
Phosphorylase kinase, beta	PHKB	E
Phosphorylase kinase, delta	DUICO	E
Phosphorylase kinase, gamma 2	PHKG2	E
Phytanoyl-CoA hydroxylase	PHYH	G E
Pineolytic beta-receptors	DACAD	
Pituitary adenylate cyclase activating peptide		N
Pituitary adenylate cyclase activating peptide	FACAPIK	Ν
receptor Plasminogen activator receptor, Urokinase	LIDAD: DI ALID	c
Plasminogen activator, Tissue	UPAR; PLAUR	S
Plasminogen activator, Urokinase	PLAT; TPA	E
i iasiminogen activator, Orokinase	UPA; PLAU	E

Platelet derived growth factor Platelet derived growth factor receptor Poly (ADP-ribose) synthetase Polycystin 1 Polycystin 2 Porphobilinogen deaminase Potassium inwardly-rectifying channel J1 Potassium inwardly-rectifying channel J11 Potassium voltage-gated channel A1 Potassium voltage-gated channel E1 Potassium voltage-gated channel Q1 Preproenkephalin Preproglucagon Preproglucagon Preproinsulin Profibrinolysin Progesterone receptor (RU486 binding	PDGF PDGFR PARS PKD1 PKD2 HMBS KCNJ1 KCNJ11 KCNA1 KCNA1 KCNE1 KCNQ1 PENK GCG;GLP1; GLP2	GGETTENNNNNGTTGG
receptor) Prolactin Prolactin receptor Prolactin releasing hormone Proliferin Proline dehydrogenase Proline-rich protein BstNI subfamily 1 Proline-rich protein BstNI subfamily 3 Proline-rich protein BstNI subfamily 4 Pro-melanin-concentrating hormone Proopiomelanocortin Prophet of Pit1 Prostacyclin synthase Prostaglandin (PG) D synthase,	PRL PRLR PRH PLF PRODH PRB1 PRB3 PRB4 PMCH POMC PROP1	G G G E S S S G N G - E
hematopoietic Prostaglandin 15-OH dehydrogenase Prostaglandin D - DP receptor Prostaglandin E1 receptor Prostaglandin E2 receptor Prostaglandin E3 receptor Prostaglandin F - FP receptor Prostaglandin I2 receptor Prostaglandin IP receptor Prostaglandin isomerase Prostaglandin isomerase Prostasin, PRSS8 Protease nexin 2 Protein kinase B Protein kinase C, alpha Protein S Protoporphyrinogen oxidase Pterin-4-alpha-carbinolamine	PRSS8 PN2 PRKB PRKCA PROS1 PPOX PCBD	I I I I T I G E E I E

Pyrroline-5-carboxylate synthetase Pyruvate carboxylase Pyruvate decarboxylase Pyruvate kinase Quinoid dihydropteridine reductase Rathke pouch homeobox, RPX Relaxin H1 Relaxin H2 Renin Replication factor C Retinal pigment epithelium specific protein (65kD)	PYCS PC PDHA PKLR QDPR RPX RLN1 RLN2 REN RFC2 RPE65	шшшшы 6 6 6 шш 8
Retinaldehyde binding protein 1	RLBP1	Т
Retinoic acid receptor, alpha	RARA	G
Retinoic acid receptor, beta	RARB	G
Retinoic acid receptor, gamma	RARG	G
Retinoid X receptor, alpha	RXRA	G
Retinoid X receptor, beta	RXRB	G
Retinoid X receptor, gamma	RXRG	G
Retinol binding protein 1		T
Retinol binding protein 2		T E
Ribosephosphate pyrophosphokinase RIGUI	RIGUI	G
Ryanodine receptor 1, skeletal	RYR1	G
S100 calcium-binding protein A1	S100A1	N
S100 calcium-binding protein A2	S100A2	N
S100 calcium-binding protein A3	S100A3	Ν
S100 calcium-binding protein A4	S100A4	Ν
S100 calcium-binding protein A5	S100A5	Ν
S100 calcium-binding protein A6	S100A6	Ν
S100 calcium-binding protein A7	S100A7	Ν
S100 calcium-binding protein A8	S100A8	Ν
S100 calcium-binding protein A9	S100A9	N
S100 calcium-binding protein B	S100B	N
S100 calcium-binding protein P	S100P	И
S-adenosylmethionine decarboxylase, AMD		E T
Salivary amylase, AMY1	SCT	†
Secretin Secretar SCTB	SCTR	Ť
Secretin receptor, SCTR	SHMT	Ė
Serine hydroxymethyltransferase Serotonin N-acetyltransferase	SNAT	Ē
Serotonin receptor, 5HT1A	HTR1A	N
Serotonin receptor, 5HT1B	HTR1B	N
Serotonin receptor, 5HT1C	HTR1C	N
Serotonin receptor, 5HT1D	HTR1D	Ν
Serotonin receptor, 5HT1E	HTR1E	N
Serotonin receptor, 5HT1F	HTR1F	Ν
Serotonin receptor, 5HT2A	HTR2A	N

Serotonin receptor, 5HT2B	HTR2B	N
Serotonin receptor, 5HT2C	HTR2C	Ν
Serotonin receptor, 5HT3	HTR3	Ν
Serotonin receptor, 5HT4	HTR4	Ν
Serotonin receptor, 5HT5	HTR5	Ν
Serotonin receptor, 5HT6	HTR6	Ν
Serotonin receptor, 5HT7	HTR7	N
Serum amyloid A	SAA	Т
Serum amyloid P	SAP	Т
Sex determining region Y, SRY	SRY	G
Sex hormone binding globulin, SHBG		Т
Sodium channel, non-voltage gated 1, alpha	SCNN1A	Ν
Sodium channel, non-voltage gated 1, beta	SCNN1B	Ν
Sodium channel, non-voltage gated 1,	SCNN1G	Ν
gamma		
Sodium channel, voltage-gated, type 1, beta	SCN1B	Ν
polypeptide		
Solute carrier family 1 (amino acid	SLC1A6	T
transporter), member 6		
Solute carrier family 1 (neutral amino acid	SLC1A4	T
transporter), member 4	01.0404	_
Solute carrier family 10 (sodium/bile acid	SLC10A1	T
cotransporter family),member 1	61.04040	_
Solute carrier family 10 (sodium/bile acid	SLC10A2	T
cotransporter family),member 2	CL C42A4	-
Solute carrier family 12, member 1	SLC12A1	Ţ
Solute carrier family 12, member 2	SLC12A2	Ţ
Solute carrier family 12, member 3	SLC12A3	T
Solute carrier family 14, member 2	SLC14A2	Ţ
Solute carrier family 15 (H+/peptide	SLC15A1	T
transporter, intestinal), member 1	01 04540	_
Solute carrier family 15 (H+/peptide	SLC15A2	T
transporter, kidney), member 2	01.04044	_
Solute carrier family 16 (monocarboxylate	SLC16A1	Т
transporter), member 1	01.04047	
Solute carrier family 16 (monocarboxylate	SLC16A7	T
transporter), member 7	01.04744	_
Solute carrier family 17, member 1	SLC17A1	T
Solute carrier family 17, member 2	SLC17A2	T
Solute carrier family 2 (facilitated glucose	SLC2A1	T
transporter), member 1	0.0010	_
Solute carrier family 2 (facilitated glucose	SLC2A2	Т
transporter), member 2	01.0040	_
Solute carrier family 2 (facilitated glucose	SLC2A3	Τ
transporter), member 3	SI C3 \ \ \	_
Solute carrier family 2 (facilitated glucose	SLC2A4	Т
transporter), member 4	SLC2A5	Т
Solute carrier family 2 (facilitated glucose	SLUZMU	1

	1		
	transporter), member 5	0.00010	
	Solute carrier family 20, member 3	SLC20A3	T
	Solute carrier family 21, member 2	SLC21A2	T
	Solute carrier family 21, member 3	SLC21A3	T
	Solute carrier family 22, member 1	SLC22A1	T
	Solute carrier family 22, member 2	SLC22A2	T
	Solute carrier family 22, member 5	SLC22A5	Ť
	Solute carrier family 3 (facilitated glucose	SLC3A1	Ť
	transporter), member 1		•
	Solute carrier family 4 (anion exchanger),	SLC4A1	Т
	member 1	0204/(1	•
	Solute carrier family 4 (anion exchanger),	SLC4A2	_
	• •	SLC4A2	T
	member 2	CL CAA2	_
	Solute carrier family 4 (anion exchanger),	SLC4A3	T
	member 3	0.0514	_
	Solute carrier family 5 (sodium/glucose	SLC5A1	T
	transporter), member 1		
	Solute carrier family 5 (sodium/glucose	SLC5A2	T
	transporter), member 2		
	Solute carrier family 5 (sodium/glucose	SLC5A5	T
	transporter), member 5		
	Solute carrier family 5, member 3	SLC5A3	T
٠	Solute carrier family 6 (GAMMA-	SLC6A1	T
	AMINOBUTYRIC ACID transporter), member		
	1		
	Solute carrier family 6 (neurotransmitter	SLC6A3	Τ
	transporter, dopamine), member 3		
	Solute carrier family 6 (neurotransmitter	SLC6A2	Т
	transporter, noradrenaline), member 2		
	Solute carrier family 6 (neurotransmitter	SLC6A4	Т
	transporter, serotonin), member 4		
	Solute carrier family 6, member 10	SLC6A10	Т
	Solute carrier family 6, member 6	SLC6A6	Т
	Solute carrier family 6, member 8	SLC6A8	T
	Solute carrier family 7(amino acid	SLC7A1	T
	transporter), member 1		•
	Solute carrier family 7(amino acid	SLC7A2	Т
	transporter), member 2	020772	•
	Solute carrier family 7(amino acid	SLC7A7	Т
	transporter), member 7	SEGIAI	'
		SLC8A1	Т
	Solute carrier family 8 (sodium/calcium	SLCOAT	ı
	exchanger), member 1	CCT	A.E
	Somatostatin secretar SSTR4	SST	N
	Somatostatin receptor, SSTR1	SSTR1	N
	Somatostatin receptor, SSTR2	SSTR2	G
	Somatostatin receptor, SSTR3	SSTR3	Ν
	Somatostatin receptor, SSTR4	SSTR4	N
	Somatostatin receptor, SSTR5	SSTR5	Ν

Somatotrophin		G
Sorcin	SRI	T
SOS1 guanine nucleotide exchange factor	SOS1	G
Sperm protamine P1	PRM1	G
Sperm protamine P2	PRM2	G
Sphingomyelinase	SMPD1	E
SRY-box 10	SOX10	G
SRY-box 11	SOX11	Ğ
SRY-box 3	SOX3	Ğ
SRY-box 4	SOX4	Ğ
SRY-box 9	SOX9	G
Steroid sulphatase	STS	E
Steroidogenic acute regulatory protein	STAR	T
Substance P		N
Succinyl CoA synthase		E
Sucrase		E
Sulfonylurea receptor	SUR	G
Superoxide dismutase 1	SOD1	E
Superoxide dismutase 3	SOD3	E
Surfeit 1	SURF1	G
T-BOX 1	TBX1	G
T-BOX 3	TBX3	G
Thiolase, perioxisomal	10/0	E
Thiopurine S-methyltransferase	TPMT	E
Thrombospondin	THBS1	G
Thrombosane A synthase 1	TBXAS1	
Thromboxane A2	TXA2	1
Thromboxane A2 receptor	TBXA2R	:
Thymopoietin	TMPO	<u>, </u>
Thymosin	TWIFO	G
Thyroglobulin	TG	1
Thyroid hormone receptor, alpha	THRA	G
Thyroid hormone receptor, beta	THRB	G G
Thyroid peroxidase	TPO	
Thyroid receptor auxiliary protein	TRAP	G
Thyroid-stimulating hormone receptor	TSHR	G
Thyroid-stimulating hormone, alpha	TSHA	G
Thyroid-stimulating hormone, beta	TSHB	G
Thyrotropin releasing hormone	TRH	G
		G
Thyrotropin releasing hormone receptor Thyroxin-binding globulin	TRHR	G
Transacylase	TBG	Ţ
	TONO	E
Transcription factor 1, handing	TCN2	T
Transcription factor 1, hepatic	TCF1	G
Transcription factor 2, hepatic	TCF2	G
Transcription termination factor, RNA	TTF1	G
polymerase 1 Transferrin	TE	_
Halloiciiii	TF	G

Transferrin receptor	TFRC	G
Transforming growth factor, beta 2	TGFB2	G
Transforming growth factor, beta induced	TGFBI	G
Transforming growth factor, beta receptor 2	TGFBR2	G
Transketolase	TKT	Ε
Transketolase-like 1	TKTL1	Ε
Transthyretin	TTR	Т
Tubby-like protein 1	TULP1	G
Tuberous sclerosis 1	TSC1	G
Tuberous sclerosis 2	TSC2	G
Tyrosinase	TYR	Ε
Tyrosinase-related protein 1	TYRP1	Ε
Tyrosine aminotransferase	TAT	Ε
Tyrosine hydroxylase	TH	Ε
Ubiquitin activating enzyme, E1		Ε
Ubiquitin protein ligase E3A	UBE3A	Ε
UDP-glucose pyrophosphorylase		Ε
UDP-glucuronosyltransferase 1	ugt1d, UGT1	Ε
UDP-glucuronosyltransferase 2	UGT2	Ε
Uncoupling protein 1		Т
Uncoupling protein 3	UCP3	T
Urate oxidase	UOX	Ε
Ureidopropionase		E
Uridine monophosphate kinase	UMPK	ı
Uridine monophosphate synthetase	UMPS	l
Uridinediphosphate(UDP)-galactose-4-	GALE	Ε
epimerase		
Uroporphyrinogen decarboxylase	UROD	E
Uteroglobin	UGB	T
Vasoactive intestinal polypeptide	VIP	Ν
Vasoactive intestinal polypeptide receptor	VIPR	Ν
Vasoinhibitory peptide		G
Von Hippel-Lindau gene	VHL	G
Werner syndrome helicase	WRN	G
Wolfram syndrome 1 gene	WFS1	S
Xylitol dehydrogenase		Έ

- 456.A set of probes, said probes being antibodies or antibody fragments which interact with specific expressed proteins encoded by gene sequences of a group of genes, said probes being for detecting relevant variants (mutations and polymorphisms), e.g. nucleotide substitutions (missense, nonsense, splicing and regulatory), small deletions, small insertions, small insertion deletions, gross insertions, gross deletions, duplications, complex rearrangements and repeat variations in a target group of genes; characterised in that said group is a core group of genes consisting of substantially all of the genes defined in claim 455.
- 457.A set according to claim 455 or 456 in which a minority of said probes for listed genes are absent.

- 458.A set according to claim 455 or 456 in which a limited number of additional probes are present together with substantially all of the probes for the listed genes.
- 459.A set according to claim 455 or 456 in which a limited number of probes are replaced by probes for non-listed genes.
- 460.A set of probes for a core group of genes according to any of claims 455 to 459 in which each gene to be probed is substantially similar (greater than 85% homologous) in sequence to the respective member of the core list of genes.
- 461.A set according to any of claims 455 to 460 consisting of probes for members of a sub-group of the core group.
- 462.A set according to any preceding claim in which said probes are in the form of an array and are spatially arranged at known locations on a substrate.
- 463.A set according to any preceding claim wherein said probes are on a substrate which forms part of or consists of one or more chip plate(s), for use in a chip assay for detection of said gene variants.
- 464.A set according to any preceding claim in which said probes are mass, electrostatic or fluorescence tagged probes.
- 465.A set according to claim 462 or 463 in which said substrate is a semiconductor microchip.
- 466.A set according to any preceding claim for use in a biological assay for detection of said gene variants.
- 467. A set according to any preceding claim for use in the measurement of differential gene expression levels.
- 468. A medical device including a set according to any preceding claim for use in an assay for detection of said gene variants.
- 469.A medical device including a set according to any of claims 455 to 467 for use in an array for detection of differential gene expression levels.
- 470. A method for use in assessing the genomic profile of a patient or individual, the method comprising testing for and detecting the presence or absence of DNA or RNA encoding the relevant structural variants (as defined in claim 455) in a target group of genes by hybridising a nucleic acid-containing sample from said patient or individual to a set according to any of claims 455 and 457 to 467 and relating the probe hybridisation pattern to said variations.
- 471. A method for use in assessing the the genomic profile of a patient or individual, the method comprising testing for and detecting the presence or absence of DNA or RNA encoding the relevant structural variants (as defined in claim 456) in a target group of genes by interacting an expressed-protein-containing sample from said patient or individual with a set of probes according to any of claims 456 to 467 and relating the probe interaction pattern to said variations.
- 472. Use of a set or device according to any of claims 455 to 467 for the prognosis and management of patients suffering from or at risk of experiencing the symptoms and consequences of endocrine and metabolic dysfunction, damage or disease.
- 473. Use of a set or device according to any of claims 455 to 467 for predicting likely therapeutic response and adverse events following therapeutic intervention.

- 474. Use of a set or device according to any of claims 455 to 467 for predicting likely therapeutic response and adverse events following the intake of a specific drug.
- 475. Use of a set or device according to any of claims 455 to 467 for predicting likely patterns of symptom clusters (symptom profiles) in disease and the likelihood of subsequent, contingent, disease or symptoms.
- 476. Use of a set or device according to any of claims 455 to 467 for general health screening, occupational health purposes, healthcare planning on a population basis and other healthcare management utilisations.
- 477. Use of a set or device according to any of claims 455 to 467 for the development of new strategies of therapeutic intervention and in clinical trials.
- 478. Use of a set or device according to any of claims 455 to 467 for construction of and generation of algorithms for patient and healthcare management.
- 479. Use of a set or device according to any of claims 455 to 467 for modelling or assessing the impact of diseases or healthcare management strategies on individuals, groups, patient cohorts or populations
- 480. Use of a set or device according to any of claims 455 to 467 for modelling, assessing or exploring the theoretical impact of diseases and healthcare management strategies on individuals, groups, patient cohorts or populations.
- 481. Use of a set or device according to any of claims 455 to 467 for predicting optimum configuration/management of thereapeutic intervention.
- 482.A method according to claim 470 or 471 in which the identification of gene variants is indicative of a higher risk of developing the symptoms and consequences of endocrine and metabolic dysfunction, damage or disease, for the patient or individual.
- 483. A method for generating a model to assess whether a patient or individual or population or group is or are likely to develop the symptoms and consequences of endocrine and metabolic dysfunction, damage or disease, which method comprises:
- i) obtaining DNA or RNA or protein samples from patients or individuals diagnosed as suffering from the symptoms and consequences of endocrine and metabolic dysfunction, damage or disease;
- obtaining DNA or RNA or protein samples from a control group of subjects diagnosed as not suffering from the symptoms and consequences of endocrine and metabolic dysfunction, damage or disease;
- analysing the samples obtained in i) and ii) to identify the polymorphic variations encoded in the core group of genes as defined in any of claims 455 to 461;
- iv) calculating the frequencies of these alleles in the samples from i) and ii);
- v) comparing the frequencies of these alleles in i) and ii);
- vi) performing a statistical analysis on the results from v) in order to generate a model for assessing the risk of developing the symptoms and consequences of endocrine and metabolic dysfunction, damage or disease.
- 484. A method for assessing whether a given subject will be at risk of developing symptoms, which comprises comparing said subject's genotype with a model generated by the method of claim 483.
- 485. A method according to any of claims 470, 471, 483 and 484 wherein at least one step is computer-controlled.

- 486. An assay suitable for use in a method according to any of claims 470, 471, 483 and 484; said assay comprising means for determining the presence or absence of relevant polymorphic variants of the core group of genes as defined in any of claims 455 to 461 in a biological sample.
- 487. A formatted assay technique (kit) for use in assessing the risk of a patient or individual developing the symptoms and consequences of endocrine and metabolic dysfunction, damage or disease; said kit comprising:
 - i) means for testing for the presence or absence or DNA or RNA encoding relevant polymorphic variants of the core group of genes as defined in claim 455 or 457 to 461 in a sample of human DNA;
 - ii) reagents for use in the detection process
 - readout indicating the probability of a patient or individual developing the symptoms and consequences of endocrine and metabolic dysfunction, damage or disease.
- 488. A formatted assay technique (kit) for use in assessing the risk of a patient or individual developing the symptoms and consequences of endocrine and metabolic dysfunction, damage or disease; said kit comprising:
 - i) means for testing for the presence or absence of proteins encoded by the core group of genes and/or relevant polymorphic variants of the core group of genes as defined in any of claims 456 to 461 in an expressed-protein-containing human sample;
 - ii) reagents for use in the detection process
 - readout indicating the probability of a patient or individual developing the symptoms and consequences of endocrine and metabolic dysfunction, damage or disease.
- 489. A set of probes according to claim 455, wherein the probes are selected from the group consisting of oligonucleotides and polynucleotides.
- 490. A set of nucleotide probes for detecting relevant variants (mutations and polymorphisms), e.g. nucleotide substitutions (missense, nonsense, splicing and regulatory), small deletions, small insertions, small insertion deletions, gross insertions, gross deletions, duplications, complex rearrangements and repeat variations in a target group of genes which relate to headaches; said probes being complementary to DNA and RNA sequences of said group of genes; characterised in that said group is a core group of genes consisting of substantially all of the following:

KEY TO 'PROTEIN FUNCTION' COLUMN

- E ENZYME
- T TRANSPORT & STORAGE
- S STRUCTURAL
- I IMMUNITY
- N NERVOUS TRANSMISSION
- G GROWTH & DIFFERENTIATION

HUGO gene symbol Protein function

Adenylate cyclase 1 Adenylate cyclase 2 Adenylate cyclase 3 Adenylate cyclase 4 Adenylate cyclase 5 Adenylate cyclase 6 Adenylate cyclase 7 Adenylate cyclase 8	ACHE ADCY1 ADCY2 ADCY3 ADCY4 ADCY5 ADCY6 ADCY7 ADCY8 ADCY9	
Adrenergic receptor, alpha1	ADRA1	N
, tate of the stat	ADRA2	N
, laionoi gio roceptor, e e la	ADRB1 ADRB2	N N
, later to the contract of the	ADRB3	N
raionorgio receptor, serme	ANGPT1	G
, angreperent, .	ANGPT2	G
,gp	ACE, DCP1	Ē
	AGTR1	T
/ (ingloconton) receptor =	AGTR2	T
Angiotensinogen	AGT	E
Arginase	ARG1	E
, "g" " ' c c c c c c c c c c c c c c c c c	AVP	N
Tallat Hadilatotto popular	ANP NDD4	G
Atrial natriuretic peptide receptor A	NPR1 NPR2	G G
Atrial natriuretic peptide receptor B	NPR3	G
Atrial natriuretic peptide receptor C	CALCA	N
Calcitonin/Calcitonin gene-related peptide alpha	OALOA	14
Calcium channel, voltage-dependent, alpha 1F subunit	CACNA1F	N
Calcium channel, voltage-dependent, Alpha- 1B (CACNL1A5)	CACNA1B	Ν
Calcium channel, voltage-dependent, Alpha- 1C	CACNA1C	Ν
Calcium channel, voltage-dependent, Alpha- 1D	CACNA1D	Ν
Calcium channel, voltage-dependent, Alpha- 1E (CACNL1A6)	CACNA1E	N
Calcium channel, voltage-dependent, Alpha- 2/delta	CACNA2	N
Calcium channel, voltage-dependent, Beta 1	CACNB1	N
Calcium channel, voltage-dependent, Beta 3	CACNB3	N
Calcium channel, voltage-dependent,	CACNG2	Ν
Neuronal, Gamma Calcium channel, voltage-dependent, P/Q	CACNA1A	Ν
type, alpha 1A subunit Calcium channel, voltage-dependent, T-type		Ν

Calmania	CANY	_
Calnexin	CANX	G
Cannabinoid receptor	CNR1	N
Carbonic anhydrase 3	CA3	E
Carbonic anhydrase 4	CA4	Ε
Carbonic anhydrase, alpha	CA1	Ε
Carbonic anhydrase, beta	CA2	E
Catechol-O-methyltransferase	COMT	E
Choline acetyltransferase	CHAT	E
Cyclic AMP-dependent protein kinase	PKA	Ε
Cyclic nucleotide phosphodiesterase 1B	PDE1B	E
Cyclic nucleotide phosphodiesterase 1B1	PDE1B1	Ε
Cyclic nucleotide phosphodiesterase 2A3	PDE2A3	Ε
Cyclic nucleotide phosphodiesterase 3A	PDE3A	Ε
Cyclic nucleotide phosphodiesterase 3B	PDE3B	Ε
Cyclic nucleotide phosphodiesterase 4A	PDE4A	Ε
Cyclic nucleotide phosphodiesterase 4C	PDE4C	Ε
Cyclic nucleotide phosphodiesterase 5A	PDE5A	Ε
Cyclic nucleotide phosphodiesterase 6A	PDE6A	Ε
Cyclic nucleotide phosphodiesterase 6B	PDE6B	E
Cyclic nucleotide phosphodiesterase 7	PDE7	Ε
Cyclic nucleotide phosphodiesterase 8	PDE8	Ε
Cyclic nucleotide phosphodiesterase 9A	PDE9A	E
Cyclooxygenase 1	COX1	Ε
Cyclooxygenase 2	COX2	Ε
CYP11A1	CYP11A1	E
CYP11B1	CYP11B1	Ε
CYP11B2	CYP11B2	Ε
CYP17	CYP17	E
CYP19	CYP19	Ε
CYP1A1	CYP1A1	Ε
CYP1A2	CYP1A2	Ε
CYP1B1	CYP1B1	E
CYP21	CYP21	E
CYP24	CYP24	Ε
CYP27	CYP27	Ε
CYP27B1	PDDR	Ε
CYP2A1	CYP2A1	Ε
CYP2A13	CYP2A13	Ε
CYP2A3	CYP2A3	E
CYP2A6V2	CYP2A6V2	Ē
CYP2A7	CYP2A7	Ε
CYP2B6	CYP2B6	E
CYP2C18	CYP2C18	Ε
CYP2C19	CYP2C19	Ε
CYP2C8	CYP2C8	Ε
CYP2C9	CYP2C9	Ε
CYP2D6	CYP2D6	Ε
CYP2E1	CYP2E1	Ε

CYP2J2 CYP3A3 CYP3A4 CYP3A5 CYP3A7 CYP4A11 CYP4B1 CYP4F2 CYP4F3 CYP51 CYP5A1 CYP5A CYP8 Cystathionase Cystathione beta synthase Cytidine deaminase Cytidine-5-prime-triphosphate synthetase Cytochrome a Cytochrome c oxidase, MTCO	CYP2F1 CYP2J2 CYP3A3 CYP3A4 CYP3A5 CYP3A7 CYP4A11 CYP4B1 CYP4F2 CYP4F3 CYP5A1 CYP5A1 CYP7A CYP8 CTH CBS CDA CTPS	
Cytokine-suppressive antiinflammatory drugbinding protein 1	CSBP1	!
Cytokine-suppressive antiinflammatory drug- binding protein 2	CSBP2	i
Dopamine beta hydroxylase Dopamine receptors D1 Dopamine receptors D2 Dopamine receptors D3 Dopamine receptors D4 Dopamine receptors D5 Dystonia 9 Endothelin 1 Endothelin 2 Endothelin 3 Endothelin converting enzyme Endothelin receptor type A Endothelin receptor type B Enolase Epidermal growth factor Epidermal growth factor receptor Erythropoietin receptor Glutathione Glutathione S-transferase, GSTZ1 Glyceraldehyde-3-phosphate dehydrogenase, GAPDH	DBH DRD1 DRD2 DRD3 DRD4 DRD5 CSE EDN1 EDN2 EDN3 ECE1 EDNRA EDNRB ENO1 EGF EGFR EPOR GSH GSTZ1 GAPDH	EZZZZZZZZZZEGG-FEE
Glycerol kinase Glycinamide ribonucleotide (GAR)	GK GART	E

transformylase	•	
Hexosaminidase B	HEXB	E
Histamine receptors, H1		N
Histamine receptors, H2		N
Histamine receptors, H3		Ν
Hypoxia inducible factor 1	HIF1A	E
Hypoxia inducible factor 2		E
Insulin	INS	G
Insulin receptor	INSR	G
Interleukin(IL) 1, alpha	IL1A	1
Interleukin(IL) 1, beta	IL1B	1
Interleukin(IL) receptor antagonist 1	IL1RN, IL1RA	ı
IP3 kinase		Ε
Marenostrin	MEFV	Т
Methylmalonyl-CoA mutase	MUT	E
Monoamine oxidase A	MAOA	Ε
Monoamine oxidase B	MAOB	E
Muscarinic receptor, M1	CHRM1	N
Muscarinic receptor, M2	CHRM2	N
Muscarinic receptor, M3	CHRM3	. N
Muscarinic receptor, M4	CHRM4	N
Muscarinic receptor, M5	CHRM5	N
Myogenic factor 3	MYF3	G
Myogenic factor 4	MYF4	G
Myogenic factor 5	MYF5	G
NADH dehydrogenase		E
NADPH-dependent cytochrome P450	POR	E
reductase		
Neurokinin A	NKNA	N
Neurokinin B	NKNB	N
Neuropeptide Y	NPY	N
Neuropeptide Y receptor Y1	NPY1R	N
Neuropeptide Y receptor Y2	NPY2R	N
Nitric oxide synthase 1, NOS1	NOS1	E
Nitric oxide synthase 2, NOS2	NOS2	E
Nitric oxide synthase 3, NOS3	NOS3	E
Phospholipase A2, group 10	PLA2G10	!
Phospholipase A2, group 1B	PLA2G1B	İ
Phospholipase A2, group 2A	PLA2G2A	1
Phospholipase A2, group 2B	PLA2G2B	ļ
Phospholipase A2, group 4A	PLA2G4A	
Phospholipase A2, group 4C	PLA2G4C	l .
Phospholipase A2, group 5	PLA2G5	
Phospholipase A2, group 6	PLA2G6	İ
Phospholipase C alpha		!
Phospholipase C beta	0.42	1
Phospholipase C delta	PLCD1	Į.
Phospholipase C epsilon		ı

Phospholipase C gamma	PLCG1	1
Potassium inwardly-rectifying channel J1	KCNJ1	Ν
Potassium voltage-gated channel E1	KCNE1	N
Potassium voltage-gated channel Q1	KCNQ1	Ν
Proopiomelanocortin	POMC	N
RIGUI	RIGUI	G
Serotonin receptor, 5HT1A	HTR1A	Ν
Serotonin receptor, 5HT1B	HTR1B	Ν
Serotonin receptor, 5HT1C	HTR1C	Ν
Serotonin receptor, 5HT1D	HTR1D	Ν
Serotonin receptor, 5HT1E	HTR1E	Ν
Serotonin receptor, 5HT1F	HTR1F	Ν
Serotonin receptor, 5HT2A	HTR2A	Ν
Serotonin receptor, 5HT2B	HTR2B	Ν
Serotonin receptor, 5HT2C	HTR2C	Ν
Serotonin receptor, 5HT3	HTR3	Ν
Serotonin receptor, 5HT4	HTR4	Ν
Serotonin receptor, 5HT5	HTR5	Ν
Serotonin receptor, 5HT6	HTR6	Ν
Serotonin receptor, 5HT7	HTR7	Ν
Sodium channel, non-voltage gated 1, alpha	SCNN1A	Ν
Sodium channel, non-voltage gated 1, beta	SCNN1B	Ν
Sodium channel, non-voltage gated 1, gamma	SCNN1G	Ν
Sodium channel, voltage-gated, type 1, beta	SCN1B	Ν
polypeptide		
Solute carrier family 5, member 3	SLC5A3	T
Solute carrier family 6 (GAMMA-	SLC6A1	T
AMINOBUTYRIC ACID transporter), member 1		
Solute carrier family 6 (neurotransmitter	SLC6A3	T
transporter, dopamine), member 3		
Solute carrier family 6 (neurotransmitter	SLC6A2	T
transporter, noradrenaline), member 2		
Substance P		Ν
Tyrosine hydroxylase	TH	Ε
UDP-glucuronosyltransferase 1	ugt1d, UGT1	E
UDP-glucuronosyltransferase 2	UGT2	E
Vasoactive intestinal polypeptide	VIP	N
Vasoactive intestinal polypeptide receptor	VIPR	Ν

491. A set of probes, said probes being antibodies or antibody fragments which interact with specific expressed proteins encoded by gene sequences of a group of genes, said probes being for detecting relevant variants (mutations and polymorphisms), e.g. nucleotide substitutions (missense, nonsense, splicing and regulatory), small deletions, small insertions, small insertion deletions, gross insertions, gross deletions, duplications, complex rearrangements and repeat variations in a target group of genes; characterised in that said group is a core group of genes consisting of substantially all of the genes defined in claim 490.

- 492.A set according to claim 490 or 491 in which a minority of said probes for listed genes are absent.
- 493.A set according to claim 490 or 491 in which a limited number of additional probes are present together with substantially all of the probes for the listed genes.
- 494.A set according to claim 490 or 491 in which a limited number of probes are replaced by probes for non-listed genes.
- 495.A set of probes for a core group of genes according to any of claims 490 to 494 in which each gene to be probed is substantially similar (greater than 85% homologous) in sequence to the respective member of the core list of genes.
- 496.A set according to any of claims 490 to 495 consisting of probes for members of a sub-group of the core group.
- 497.A set according to any preceding claim in which said probes are in the form of an array and are spatially arranged at known locations on a substrate.
- 498.A set according to any preceding claim wherein said probes are on a substrate which forms part of or consists of one or more chip plate(s), for use in a chip assay for detection of said gene variants.
- 499.A set according to any preceding claim in which said probes are mass, electrostatic or fluorescence tagged probes.
- 500.A set according to claim 497 or 498 in which said substrate is a semiconductor microchip.
- 501.A set according to any preceding claim for use in a biological assay for detection of said gene variants.
- 502. A set according to any preceding claim for use in the measurement of differential gene expression levels.
- 503. A medical device including a set according to any preceding claim for use in an assay for detection of said gene variants.
- 504.A medical device including a set according to any of claims 490 to 502 for use in an array for detection of differential gene expression levels.
- 505. A method for use in assessing the genomic profile of a patient or individual, the method comprising testing for and detecting the presence or absence of DNA or RNA encoding the relevant structural variants (as defined in claim 490) in a target group of genes by hybridising a nucleic acid-containing sample from said patient or individual to a set according to any of claims 490 and 492 to 502 and relating the probe hybridisation pattern to said variations.
- 506. A method for use in assessing the the genomic profile of a patient or individual, the method comprising testing for and detecting the presence or absence of DNA or RNA encoding the relevant structural variants (as defined in claim 491) in a target group of genes by interacting an expressed-protein-containing sample from said patient or individual with a set of probes according to any of claims 491 to 502 and relating the probe interaction pattern to said variations.
- 507. Use of a set or device according to any of claims 490 to 502 for the prognosis and management of patients suffering from or at risk of developing a headache.

- 508. Use of a set or device according to any of claims 490 to 502 for predicting likely therapeutic response and adverse events following therapeutic intervention.
- 509. Use of a set or device according to any of claims 490 to 502 for predicting likely therapeutic response and adverse events following the intake of a specific drug.
- 510. Use of a set or device according to any of claims 490 to 502 for predicting likely patterns of symptom clusters (symptom profiles) in disease and the likelihood of subsequent, contingent, disease or symptoms.
- 511. Use of a set or device according to any of claims 490 to 502 for general health screening, occupational health purposes, healthcare planning on a population basis and other healthcare management utilisations.
- 512. Use of a set or device according to any of claims 490 to 502 for the development of new strategies of therapeutic intervention and in clinical trials.
- 513. Use of a set or device according to any of claims 490 to 502 for construction of and generation of algorithms for patient and healthcare management.
- 514. Use of a set or device according to any of claims 490 to 502 for modelling or assessing the impact of diseases or healthcare management strategies on individuals, groups, patient cohorts or populations.
- 515. Use of a set or device according to any of claims 490 to 502 for modelling, assessing or exploring the theoretical impact of diseases and healthcare management strategies on individuals, groups, patient cohorts or populations.
- 516. Use of a set or device according to any of claims 490 to 502 for predicting optimum configuration/management of thereapeutic intervention.
- 517. A method according to claim 505 or 506 in which the identification of gene variants is indicative of a higher risk of developing a headache for the patient or individual.
- 518. A method for generating a model to assess whether a patient or individual or population or group is or are likely to develop a headache, which method comprises:
- obtaining DNA or RNA or protein samples from patients or individuals diagnosed as suffering from headaches;
 - obtaining DNA or RNA or protein samples from a control group of subjects diagnosed as not suffering from the headaches;
 - analysing the samples obtained in i) and ii) to identify the polymorphic variations encoded in the core group of genes as defined in any of claims 490 to 496;
 - iv) calculating the frequencies of these alleles in the samples from i) and ii);
 - v) comparing the frequencies of these alleles in i) and ii);
 - vi) performing a statistical analysis on the results from v) in order to generate a model for assessing the risk of developing a headache.
 - 519. A method for assessing whether a given subject will be at risk of developing symptoms, which comprises comparing said subject's genotype with a model generated by the method of claim 518.
 - 520. A method according to any of claims 505, 506, 518 and 519 wherein at least one step is computer-controlled.
 - 521. An assay suitable for use in a method according to any of claims 505, 506, 518 and 519; said assay comprising means for determining the presence or absence of relevant polymorphic variants of the core group of genes as defined in any of claims 490 to 496 in a biological sample.

- 522. A formatted assay technique (kit) for use in assessing the risk of a patient or individual developing a headache; said kit comprising:
 - i) means for testing for the presence or absence or DNA or RNA encoding relevant polymorphic variants of the core group of genes as defined in claim 490 or 492 to 496 in a sample of human DNA;
 - ii) reagents for use in the detection process
 - ii) readout indicating the probability of a patient or individual developing a headache.
- 523. A formatted assay technique (kit) for use in assessing the risk of a patient or individual developing a headache; said kit comprising:
 - i) means for testing for the presence or absence of proteins encoded by the core group of genes and/or relevant polymorphic variants of the core group of genes as defined in any of claims 491 to 496 in an expressed-protein-containing human sample;
 - ii) reagents for use in the detection process
 - readout indicating the probability of a patient or individual developing a headache.
- 524. A set of probes according to claim 490, wherein the probes are selected from the group consisting of oligonucleotides and polynucleotides.
- 525.A set of nucleotide probes for detecting relevant variants (mutations and polymorphisms), e.g. nucleotide substitutions (missense, nonsense, splicing and regulatory), small deletions, small insertions, small insertion deletions, gross insertions, gross deletions, duplications, complex rearrangements and repeat variations in a target group of genes which relate to sexual dysfunction; said probes being complementary to DNA and RNA sequences of said group of genes; characterised in that said group is a core group of genes consisting of substantially all of the following:

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- E ENZYME
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- G GROWTH & DIFFERENTIATION

SEXUAL DYSFUNCTION GENE LIST	HUGO gene symbol	Protein function
11beta hydroxysteroid dehydrogenase 2	HSD11B2	E
Acetylcholinesterase	ACHE	E
Activin		G
Adenylate cyclase 1	ADCY1	E
Adenylate cyclase 2	ADCY2	Ε
Adenylate cyclase 3	ADCY3	Ε
Adenylate cyclase 4	ADCY4	E
Adenylate cyclase 5	ADCY5	E

Adenylate cyclase 7 Adenylate cyclase 8 Adenylate cyclase 9 Adrenergic receptor, alpha1 Adrenergic receptor, beta1 Adrenergic receptor, beta2 Adrenergic receptor, beta3 Adrenoleukodystrophy gene alpha thalassemia gene Androgen binding protein Angiopoietin 1 Angiopoietin 2 Angiotensin converting enzyme Angiotensin receptor 1 Angiotensin receptor 2 Angiotensin receptor 2 Angiotensinogen Anti-Mullerian hormone Anti-Mullerian hormone type 2 receptor Arginase Arginine vasopressin receptor 1B Arginine vasopressin receptor 1 Arginine vasopressin receptor 2 Atrial natriuretic peptide Atrial natriuretic peptide receptor B Atrial natriuretic peptide receptor C Autoimmune regulator, AIRE BCL2-associated X protein Bloom syndrome protein	ADCY6 ADCY7 ADCY8 ADCY9 ADRA1 ADRA2 ADRB1 ADRB2 ADRB3 ALD ATRX ABP ANGPT1 ANGPT2 ACE, DCP1 AGTR1 AGTR2 AGT AMH AMHR2 ARG1 AVPR1A AVPR1B AVPR1B AVPR2 ANP NPR1 NPR2 NPR3 AIRE BAX BLM	
Calcium channel, voltage-dependent, alpha 1F subunit Calcium channel, voltage-dependent, Alpha-	CACNA1B	N
1B (CACNL1A5) Calcium channel, voltage-dependent, Alpha-	CACNA1C	N
1C Calcium channel, voltage-dependent, Alpha- 1D	CACNA1D	N
Calcium channel, voltage-dependent, Alpha- 1E (CACNL1A6)	CACNA1E	N
Calcium channel, voltage-dependent, Alpha- 2/delta	CACNA2	N
Calcium channel, voltage-dependent, Beta 1 Calcium channel, voltage-dependent, Beta 3 Calcium channel, voltage-dependent, Neuronal, Gamma	CACNB1 CACNB3 CACNG2	N N N

Calcium channel, voltage-dependent, T-type		Ν
Carbonic anhydrase 3	CA3	Ε
Carbonic anhydrase 4	CA4	Ε
Carbonic anhydrase, alpha	CA1	E
Carbonic anhydrase, beta	CA2	Ε
Catechol-O-methyltransferase	COMT	E
Choline acetyltransferase	CHAT	Ε
Cyclic AMP response element modulator	CREM	G
Cyclic AMP-dependent protein kinase	PKA	E
Cyclic nucleotide phosphodiesterase 1B	PDE1B	Ε
Cyclic nucleotide phosphodiesterase 1B1	PDE1B1	Ε
Cyclic nucleotide phosphodiesterase 2A3	PDE2A3	Ε
Cyclic nucleotide phosphodiesterase 3A	PDE3A	E
Cyclic nucleotide phosphodiesterase 3B	PDE3B	Ε
Cyclic nucleotide phosphodiesterase 4A	PDE4A	Ε
Cyclic nucleotide phosphodiesterase 4C	PDE4C	Ε
Cyclic nucleotide phosphodiesterase 5A	PDE5A	Ε
Cyclic nucleotide phosphodiesterase 6A	PDE6A	Ε
Cyclic nucleotide phosphodiesterase 6B	PDE6B	E
Cyclic nucleotide phosphodiesterase 7	PDE7	E
Cyclic nucleotide phosphodiesterase 8	PDE8	E
Cyclic nucleotide phosphodiesterase 9A	PDE9A	Ε
Cyclooxygenase 1	COX1	Ε
Cyclooxygenase 2	COX2	E
CYP11A1	CYP11A1	Ε
CYP11B1	CYP11B1	E
CYP11B2	CYP11B2	Ε
CYP17	CYP17	E
.CYP19	CYP19	Ε
CYP1A1	CYP1A1	Ε
CYP1A2	CYP1A2	E
CYP1B1	CYP1B1	Ε
CYP21	CYP21	E
CYP24	CYP24	Ε
CYP27	CYP27	Ε
CYP27B1	PDDR	Ε
CYP2A1	CYP2A1	E
CYP2A13	CYP2A13	Ε
CYP2A3	CYP2A3	E
CYP2A6V2	CYP2A6V2	E
CYP2A7	CYP2A7	Ε
CYP2B6	CYP2B6	E
CYP2C18	CYP2C18	E
CYP2C19	CYP2C19	E
CYP2C8	CYP2C8	E
CYP2C9	CYP2C9	E
CYP2D6	CYP2D6	E
CYP2E1	CYP2E1	E

CYP2J2 CYP3A3 CYP3A4 CYP3A5 CYP3A7 CYP4A11 CYP4B1 CYP4F2 CYP4F3 CYP5A1 CYP5A1 CYP7A CYP8 Cystathionase Cystathione beta synthase Cytidine deaminase Cytidine-5-prime-triphosphate synthetase Cytochrome a Cytochrome c Cytochrome c oxidase, MTCO Cytokine-suppressive antiinflammatory drug-	CYP2F1 CYP2J2 CYP3A3 CYP3A4 CYP3A5 CYP3A7 CYP4A11 CYP4B1 CYP4F2 CYP4F3 CYP51 CYP5A1 CYP7A CYP8 CTH CBS CDA CTPS	
binding protein 1	CCBB2	ı
	CSBFZ	•
DAX1 nuclear receptor	DAX1	I
Deleted in azoospermia	DAZ	G
Diaphanous 2		
·		
- ·	EIFDH	E
		_
· · ·		
	ENUT	
Enoyl CoA isomerase		L
Cytochrome c oxidase, MTCO Cytokine-suppressive antiinflammatory drug- binding protein 1 Cytokine-suppressive antiinflammatory drug- binding protein 2 DAX1 nuclear receptor Deleted in azoospermia	CSBP2 DAX1	EII

Enterokinase Epidermal growth factor Epidermal growth factor receptor Faciogenital dysplasia Factor XIII A & B Fanconi anemia, complementation group A Fertilin protein Flightless-II, Drosophila homolog of Folic acid receptor Glutathione Glutathione S-transferase, GSTZ1 Glyceraldehyde-3-phosphate dehydrogenase, GAPDH	PRSS7, ENTK EGF EGFR FGD1, FGDY F13A & F13B FANCA FTNB FLII FOLR GSH GSTZ1 GAPDH	EGGTITGGGTEE
Glycerol kinase	GK	Ε
Glycinamide ribonucleotide (GAR)	GART	Ε
transformylase		_
Glycogen phosphorylase	PYGL	E
Gonadotropin releasing hormone Gonadotropin releasing hormone receptor	GNRH	G G
Guanine nucleotide-binding protein, alpha	GNRHR GNAI1	N
inhibiting activity polypeptide 1, GNAI1	GIVALL	IN
Guanine nucleotide-binding protein, alpha	GNAI2	N
inhibiting activity polypeptide 2, GNAI2	0.0.0	•
Guanine nucleotide-binding protein, alpha	GNAI3	Ν
inhibiting activity polypeptide 3, GNAI3		
Hexosaminidase B	HEXB	Ε
Holoprosencephaly 1	HPE1	G
Holoprosencephaly 2	HPE2	G
Holoprosencephaly 3	HPE3	G
Holoprosencephaly 4	HPE4	G
Human placental lactogen	CSH1	G
Inhibin, alpha	INHA	G
Inhibin, beta A	INHBA	G
Inhibin, beta B	INHBB	G
Inhibin, beta C	INHBC	G
Insulin	INS	G
Insulin receptor	INSR	G
IP3 kinase		Ε
Kallman syndrome gene 1	KAL1	G
Laminin 5, alpha 3	LAMA3	G
Laminin 5, beta 3	LAMB3	G
Laminin receptor 1	LAMR1	G
Long QT-type 2 potassium channels	LQT2, KCNH2	T
Luteinizing hormone, beta chain	LHB	G
MAD (mothers against decapentaplegic,	MADH2	G
Drosophila) homologue 2	141 T	_
Methylmalonyl-CoA mutase	MUT	E
Monoamine oxidase A	MAOA	Ε

Monoamine oxidase B Muscarinic receptor, M1 Muscarinic receptor, M2 Muscarinic receptor, M3 CHRM1 N Muscarinic receptor, M3 CHRM3 N Muscarinic receptor, M4 CHRM4 N Muscarinic receptor, M5 CHRM5 NADPH-dependent cytochrome P450 POR E reductase Neuropeptide Y Neuropeptide Y Neuropeptide Y receptor Y1 Neuropeptide Y receptor Y2 NPY1R Neuropeptide Y receptor Y2 NPY2R Nitric oxide synthase 1, NOS1 NOS1 Nitric oxide synthase 2, NOS2 NOS2 Nitric oxide synthase 3, NOS3 NOS3 Concogene ELK1 Concogene ELK2 Paired box homeotic gene 3 Patched (Drosophila) homolog, PTCH Potassium inwardly-rectifying channel J1 Potassium inwardly-rectifying channel J1 Potassium voltage-gated channel A1 Potassium voltage-gated channel A1 Potassium voltage-gated channel Q1 Notassium voltage-gated channel Q2 Potassium voltage-gated channel Q2 Potassium voltage-gated channel Q3 Progesterone receptor (RU486 binding PGR G Prostasiin, PRSS8 Ribosomal protein S4, X-linked RPS4X E RIGUI G Serotonin receptor, 5HT1A Serotonin receptor, 5HT1B HTR1B N Serotonin receptor, 5HT1D HTR1D N Serotonin receptor, 5HT1E N Serotonin receptor, 5HT2A N N N NADPH-M2M4 N CHRM1 N CHRM4 N N CHRM4 N N N CHRM5 N N CHRM5 N N NPY N N NPY N N NPY N N NPY N N NPY N N NPY N N NPY N N NPY N N NPY N N NPY N N NPY N N NPY N N NPY N N NPY N N NPY N N NPY N N NPY N N NPY N N N N
Muscarinic receptor, M2 Muscarinic receptor, M3 Muscarinic receptor, M4 Muscarinic receptor, M5 Muscarinic receptor, M4 Muscarinic receptor, M4 Nuscarinic receptor, M5 NoS NoS Receptor NPY Nover NoPY Nover NoPY NoPY NoPY NoPY NoPY NoPY NoPY NoPY
Muscarinic receptor, M3 Muscarinic receptor, M4 Muscarinic receptor, M5 Muscarinic receptor, M5 NADPH-dependent cytochrome P450 Reductase Neuropeptide Y Neuropeptide Y receptor Y1 Neuropeptide Y receptor Y2 Nitric oxide synthase 1, NOS1 Nitric oxide synthase 3, NOS2 NoS1 NoS1 NoS1 Nitric oxide synthase 3, NOS3 NOS3 Concogene ELK1 Concogene ELK2 Paired box homeotic gene 3 Patched (Drosophila) homolog, PTCH Potassium inwardly-rectifying channel J1 Potassium voltage-gated channel A1 Potassium voltage-gated channel A1 Potassium voltage-gated channel A1 Potassium voltage-gated channel Q1 Rotassium voltage-gated channel Q2 Potassium voltage-gated channel Q3 Progesterone receptor (RU486 binding PGR Greceptor) Prostasin, PRSS8 Ribosomal protein S4, X-linked RPS4X E RIGUI Serotonin receptor, 5HT1B Nerotonin receptor, 5HT1C Nerotonin receptor, 5HT1C Nerotonin receptor, 5HT1C Nerotonin receptor, 5HT1C Nerotonin receptor, 5HT2A Nerotonin receptor, 5HT2A Nerotonin receptor, 5HT2A Nerotonin receptor, 5HT2A Nerotonin receptor, 5HT2A Nerotonin receptor, 5HT2A Nerotonin receptor, 5HT2A Nerotonin receptor, 5HT2A Nerotonin receptor, 5HT2A Nerotonin receptor, 5HT2A Nerotonin receptor, 5HT2A Nerotonin receptor, 5HT2B NERMS NE
Muscarinic receptor, M4 Muscarinic receptor, M5 NADPH-dependent cytochrome P450 POR E reductase Neuropeptide Y Neuropeptide Y receptor Y1 Neuropeptide Y receptor Y2 Nitric oxide synthase 1, NOS1 Nitric oxide synthase 3, NOS3 NOS2 NoS2 NoS2 NoS2 NoS3 NoS3 E Nocogene ELK1 Chicoxide synthase 3, NOS3 NoS3 E Nocogene ELK2 Paired box homeotic gene 3 Patched (Drosophila) homolog, PTCH Potassium inwardly-rectifying channel J1 Potassium voltage-gated channel A1 Notassium voltage-gated channel E1 Notassium voltage-gated channel Q1 Notassium voltage-gated channel Q2 Notassium voltage-gated channel Q3 Nocogene ELK2 Nocogene ELK2 Romania inwardly-rectifying channel J1 Notassium voltage-gated channel A1 Nocassium voltage-gated channel C1 Notassium voltage-gated channel C1 Nocogene ELK2 Nocogene ELK2 Romania inwardly-rectifying channel J1 Nocotassium inwardly-rectifying channel J1 Nocotassium voltage-gated channel C1 Nocogene ELK2 Romania Nocogene C1 Nocogene ELK2 Romania Nocogene C2 Nocogene ELK2 Romania Nocogene C3 Romania Nocogene C4 Romania Nocogene C5 Romania Nocogene C6 Romania Nocogene C7 Romania
Muscarinic receptor, M5 NADPH-dependent cytochrome P450 POR E reductase Neuropeptide Y Neuropeptide Y Neuropeptide Y receptor Y1 Neuropeptide Y receptor Y2 Nitric oxide synthase 1, NOS1 Nitric oxide synthase 2, NOS2 NoS2 Nitric oxide synthase 3, NOS3 NOS3 E Nitric oxide synthase 3, NOS3 NOS3 E Nocogene ELK1 Concogene ELK2 ELK2 G Paired box homeotic gene 3 PAX3 G Patched (Drosophila) homolog, PTCH Potassium inwardly-rectifying channel J1 Potassium voltage-gated channel A1 Potassium voltage-gated channel E1 Potassium voltage-gated channel E1 Potassium voltage-gated channel Q2 Rotassium voltage-gated channel Q2 Rotassium voltage-gated channel Q3 Progesterone receptor (RU486 binding PGR G RIGUI Serotonin receptor, 5HT1A Serotonin receptor, 5HT1B Serotonin receptor, 5HT1E Serotonin receptor, 5HT1E Serotonin receptor, 5HT2A Serotonin receptor, 5HT2A NHPCASS NPY2R
NADPH-dependent cytochrome P450 reductase Neuropeptide Y Neuropeptide Y receptor Y1 Neuropeptide Y receptor Y2 NPY2R Nitric oxide synthase 1, NOS1 Nitric oxide synthase 2, NOS2 Nitric oxide synthase 3, NOS3 NOS3 NOS3 NOS3 NOS3 NOS3 NOS3 NOS3
reductase Neuropeptide Y Neuropeptide Y receptor Y1 Neuropeptide Y receptor Y2 NPY1R Nitric oxide synthase 1, NOS1 Nitric oxide synthase 2, NOS2 Nitric oxide synthase 3, NOS3 NOS3 NOS3 NOS3 NOS3 NOS3 NOS3 NOS3
Neuropeptide Y receptor Y1 Neuropeptide Y receptor Y2 Nitric oxide synthase 1, NOS1 Nitric oxide synthase 2, NOS2 Nitric oxide synthase 3, NOS3 NOS3 NOS3 NOS3 NOS3 NOS3 NOS3 NOS3
Neuropeptide Y receptor Y2 Nitric oxide synthase 1, NOS1 Nitric oxide synthase 2, NOS2 Nitric oxide synthase 3, NOS3 NOS3 NOS3 NOS3 NOS3 NOS3 NOS3 NOS3
Nitric oxide synthase 1, NOS1 Nitric oxide synthase 2, NOS2 Nitric oxide synthase 2, NOS2 Nitric oxide synthase 3, NOS3 NOS3 E Nitric oxide synthase 3, NOS3 NOS3 E Concogene ELK1 ELK1 G Concogene ELK2 ELK2 ELK2 G Paired box homeotic gene 3 PAX3 G Patched (Drosophila) homolog, PTCH PTCH G Potassium inwardly-rectifying channel J1 Potassium inwardly-rectifying channel J1 Potassium voltage-gated channel J1 N Potassium voltage-gated channel A1 Potassium voltage-gated channel E1 RCNA1 N Potassium voltage-gated channel Q2 Rotassium voltage-gated channel Q2 Potassium voltage-gated channel Q3 Progesterone receptor (RU486 binding PGR G receptor) Proopiomelanocortin POMC N Prostasin, PRSS8 E Ribosomal protein S4, X-linked RPS4X E RIGUI Serotonin receptor, 5HT1A N Serotonin receptor, 5HT1B N Serotonin receptor, 5HT1C N Serotonin receptor, 5HT1C N Serotonin receptor, 5HT1E N Serotonin receptor, 5HT1E N Serotonin receptor, 5HT1E N Serotonin receptor, 5HT2A N Serotonin receptor, 5HT2A N Serotonin receptor, 5HT2A N Serotonin receptor, 5HT2A N Serotonin receptor, 5HT2A N Serotonin receptor, 5HT2A N Serotonin receptor, 5HT2A N Serotonin receptor, 5HT2B N
Nitric oxide synthase 2, NOS2 Nitric oxide synthase 3, NOS3 NOS3 E Nitric oxide synthase 3, NOS3 NOS3 E Oncogene ELK1 ELK1 G Oncogene ELK2 ELK2 Faired box homeotic gene 3 PAX3 Fatched (Drosophila) homolog, PTCH PTCH G Potassium inwardly-rectifying channel J1 Potassium inwardly-rectifying channel J1 Potassium voltage-gated channel J1 Potassium voltage-gated channel A1 Potassium voltage-gated channel E1 RCNA1 N Potassium voltage-gated channel Q1 RCNQ1 N Potassium voltage-gated channel Q2 RCNQ2 N Potassium voltage-gated channel Q3 Progesterone receptor (RU486 binding PGR G receptor) Proopiomelanocortin POMC N Prostasin, PRSS8 E Ribosomal protein S4, X-linked RPS4X E RIGUI Serotonin receptor, 5HT1B HTR1B N Serotonin receptor, 5HT1C Serotonin receptor, 5HT1C Serotonin receptor, 5HT1E Serotonin receptor, 5HT1E Serotonin receptor, 5HT1E N Serotonin receptor, 5HT2A N Serotonin receptor, 5HT2A N Serotonin receptor, 5HT2A N Serotonin receptor, 5HT2A N Serotonin receptor, 5HT2A N Serotonin receptor, 5HT2A N Serotonin receptor, 5HT2A N Serotonin receptor, 5HT2A N Serotonin receptor, 5HT2A N Serotonin receptor, 5HT2A N Serotonin receptor, 5HT2A N Serotonin receptor, 5HT2B
Nitric oxide synthase 3, NOS3 Oncogene ELK1 Characteristic Service S
Oncogene ELK1
Oncogene ELK2 ELK2 G Paired box homeotic gene 3 PAX3 G Patched (Drosophila) homolog, PTCH PTCH G Potassium inwardly-rectifying channel J1 KCNJ1 N Potassium inwardly-rectifying channel J1 KCNJ1 N Potassium voltage-gated channel A1 KCNA1 N Potassium voltage-gated channel E1 KCNE1 N Potassium voltage-gated channel Q1 KCNQ1 N Potassium voltage-gated channel Q2 KCNQ2 N Potassium voltage-gated channel Q3 KCNQ3 N Progesterone receptor (RU486 binding PGR G receptor) Proopiomelanocortin POMC N Prostasin, PRSS8 E Ribosomal protein S4, X-linked RPS4X E RIGUI RIGUI G Serotonin receptor, 5HT1A HTR1A N Serotonin receptor, 5HT1B HTR1B N Serotonin receptor, 5HT1C HTR1C N Serotonin receptor, 5HT1D HTR1D N Serotonin receptor, 5HT1E HTR1E N Serotonin receptor, 5HT1F HTR1F N Serotonin receptor, 5HT2A HTR2A N Serotonin receptor, 5HT2A HTR2A N Serotonin receptor, 5HT2B HTR2B N
Paired box homeotic gene 3 Patched (Drosophila) homolog, PTCH PTCH G Potassium inwardly-rectifying channel J1 RCNJ1 N Potassium inwardly-rectifying channel J1 RCNJ11 N Potassium voltage-gated channel A1 Potassium voltage-gated channel E1 RCNE1 N Potassium voltage-gated channel Q1 RCNQ1 N Potassium voltage-gated channel Q2 RCNQ2 N Potassium voltage-gated channel Q3 RCNQ3 N Progesterone receptor (RU486 binding PGR G receptor) Proopiomelanocortin POMC N Prostasin, PRSS8 Ribosomal protein S4, X-linked RPS4X RIGUI Serotonin receptor, 5HT1A RTR1A N Serotonin receptor, 5HT1B RTR1B N Serotonin receptor, 5HT1C RTR1C N Serotonin receptor, 5HT1E RTR1C N Serotonin receptor, 5HT1E RTR1E N Serotonin receptor, 5HT1F Recotonin receptor, 5HT1F Recotonin receptor, 5HT2A RTR1B RTR1B RTR1B RTR1B RTR1B RTR1B RTR1B RTR1B RTR1B RTR1B RTR1C
Patched (Drosophila) homolog, PTCH PTCH G Potassium inwardly-rectifying channel J1 KCNJ1 N Potassium inwardly-rectifying channel J11 KCNJ11 N Potassium voltage-gated channel A1 KCNA1 N Potassium voltage-gated channel E1 KCNE1 N Potassium voltage-gated channel Q1 KCNQ1 N Potassium voltage-gated channel Q2 KCNQ2 N Potassium voltage-gated channel Q3 KCNQ3 N Progesterone receptor (RU486 binding PGR G receptor) Proopiomelanocortin POMC N Prostasin, PRSS8 PRSS8 E Ribosomal protein S4, X-linked RPS4X E RIGUI RIGUI G Serotonin receptor, 5HT1A HTR1A N Serotonin receptor, 5HT1B HTR1B N Serotonin receptor, 5HT1C HTR1C N Serotonin receptor, 5HT1D HTR1D N Serotonin receptor, 5HT1E HTR1E N Serotonin receptor, 5HT1F HTR1F N Serotonin receptor, 5HT1P HTR1F N Serotonin receptor, 5HT1P HTR1F N Serotonin receptor, 5HT1P HTR1F N Serotonin receptor, 5HT2A HTR2A N Serotonin receptor, 5HT2A HTR2A N Serotonin receptor, 5HT2A HTR2A N Serotonin receptor, 5HT2B HTR2B N
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Potassium inwardly-rectifying channel J11 KCNJ11 N Potassium voltage-gated channel A1 KCNA1 N Potassium voltage-gated channel E1 KCNE1 N Potassium voltage-gated channel Q1 KCNQ1 N Potassium voltage-gated channel Q2 KCNQ2 N Potassium voltage-gated channel Q3 KCNQ3 N Progesterone receptor (RU486 binding PGR G receptor) Proopiomelanocortin POMC N Prostasin, PRSS8 PRSS8 E Ribosomal protein S4, X-linked RPS4X E RIGUI RIGUI G Serotonin receptor, 5HT1A HTR1A N Serotonin receptor, 5HT1B HTR1B N Serotonin receptor, 5HT1C HTR1C N Serotonin receptor, 5HT1D HTR1D N Serotonin receptor, 5HT1E HTR1E N Serotonin receptor, 5HT1F HTR1F N Serotonin receptor, 5HT2A HTR2A N Serotonin receptor, 5HT2A HTR2B N
Potassium voltage-gated channel A1 KCNA1 N Potassium voltage-gated channel E1 KCNE1 N Potassium voltage-gated channel Q1 KCNQ1 N Potassium voltage-gated channel Q2 KCNQ2 N Potassium voltage-gated channel Q3 KCNQ3 N Progesterone receptor (RU486 binding PGR G receptor) Proopiomelanocortin POMC N Prostasin, PRSS8 PRSS8 E Ribosomal protein S4, X-linked RPS4X E RIGUI RIGUI G Serotonin receptor, 5HT1A HTR1A N Serotonin receptor, 5HT1B HTR1B N Serotonin receptor, 5HT1C HTR1C N Serotonin receptor, 5HT1D HTR1D N Serotonin receptor, 5HT1E HTR1E N Serotonin receptor, 5HT1F HTR1F N Serotonin receptor, 5HT2A HTR2A N Serotonin receptor, 5HT2B HTR2B N
Potassium voltage-gated channel E1 KCNE1 N Potassium voltage-gated channel Q1 KCNQ1 N Potassium voltage-gated channel Q2 KCNQ2 N Potassium voltage-gated channel Q3 KCNQ3 N Progesterone receptor (RU486 binding PGR G receptor) Proopiomelanocortin POMC N Prostasin, PRSS8 PRSS8 E Ribosomal protein S4, X-linked RPS4X E RIGUI RIGUI G Serotonin receptor, 5HT1A HTR1A N Serotonin receptor, 5HT1B HTR1B N Serotonin receptor, 5HT1C HTR1C N Serotonin receptor, 5HT1D HTR1D N Serotonin receptor, 5HT1E HTR1E N Serotonin receptor, 5HT1F HTR1F N Serotonin receptor, 5HT1F HTR1F N Serotonin receptor, 5HT2A HTR2A N Serotonin receptor, 5HT2B HTR2B N
Potassium voltage-gated channel Q1 KCNQ1 N Potassium voltage-gated channel Q2 KCNQ2 N Potassium voltage-gated channel Q3 KCNQ3 N Progesterone receptor (RU486 binding PGR G receptor) Proopiomelanocortin POMC N Prostasin, PRSS8 PRSS8 E Ribosomal protein S4, X-linked RPS4X E RIGUI RIGUI G Serotonin receptor, 5HT1A HTR1A N Serotonin receptor, 5HT1B HTR1B N Serotonin receptor, 5HT1C HTR1C N Serotonin receptor, 5HT1D HTR1D N Serotonin receptor, 5HT1E HTR1E N Serotonin receptor, 5HT1F HTR1F N Serotonin receptor, 5HT1F HTR1F N Serotonin receptor, 5HT2A HTR2A N Serotonin receptor, 5HT2B HTR2B N
Potassium voltage-gated channel Q2 KCNQ2 N Potassium voltage-gated channel Q3 KCNQ3 N Progesterone receptor (RU486 binding PGR G receptor) Proopiomelanocortin POMC N Prostasin, PRSS8 ERibosomal protein S4, X-linked RPS4X ERIGUI GSerotonin receptor, 5HT1A HTR1A N Serotonin receptor, 5HT1B HTR1B N Serotonin receptor, 5HT1C HTR1C N Serotonin receptor, 5HT1D HTR1D N Serotonin receptor, 5HT1E HTR1E N Serotonin receptor, 5HT1E HTR1E N Serotonin receptor, 5HT1F HTR1F N Serotonin receptor, 5HT2A HTR2A N Serotonin receptor, 5HT2A HTR2B N
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Progesterone receptor (RU486 binding PGR Greceptor) Proopiomelanocortin POMC N Prostasin, PRSS8 PRSS8 E Ribosomal protein S4, X-linked RPS4X E RIGUI RIGUI G Serotonin receptor, 5HT1A HTR1A N Serotonin receptor, 5HT1B HTR1B N Serotonin receptor, 5HT1C HTR1C N Serotonin receptor, 5HT1D HTR1D N Serotonin receptor, 5HT1E HTR1E N Serotonin receptor, 5HT1F HTR1F N Serotonin receptor, 5HT2A HTR2A N Serotonin receptor, 5HT2B HTR2B N
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Proopiomelanocortin Prostasin, PRSS8 PRSS8 Ribosomal protein S4, X-linked RIGUI RIGUI Serotonin receptor, 5HT1A Serotonin receptor, 5HT1B Serotonin receptor, 5HT1C Serotonin receptor, 5HT1D HTR1D N Serotonin receptor, 5HT1E Serotonin receptor, 5HT1E Serotonin receptor, 5HT1F N Serotonin receptor, 5HT1F Serotonin receptor, 5HT1B N Serotonin receptor, 5HT1F N Serotonin receptor, 5HT1B N Serotonin receptor, 5HT1B N Serotonin receptor, 5HT1B N Serotonin receptor, 5HT1B N Serotonin receptor, 5HT1B N Serotonin receptor, 5HT2A N Serotonin receptor, 5HT2B N
Prostasin, PRSS8 Ribosomal protein S4, X-linked RIGUI RIGUI Receptor, 5HT1A Recotonin receptor, 5HT1B Recotonin receptor, 5HT1C Recotonin receptor, 5HT1C Recotonin receptor, 5HT1D Recotonin receptor, 5HT1E Recotonin receptor, 5HT1E Recotonin receptor, 5HT1F Recotonin receptor, 5HT1F Recotonin receptor, 5HT1F Recotonin receptor, 5HT2A Recotonin receptor, 5HT2A Recotonin receptor, 5HT2B Recotonin receptor, 5HT2B Recotonin receptor, 5HT2B Recotonin receptor, 5HT2B Recotonin receptor, 5HT2B Recotonin receptor, 5HT2B
Ribosomal protein S4, X-linked RIGUI RIGUI Serotonin receptor, 5HT1A Serotonin receptor, 5HT1B Serotonin receptor, 5HT1C Serotonin receptor, 5HT1D HTR1D N Serotonin receptor, 5HT1E Serotonin receptor, 5HT1E Serotonin receptor, 5HT1F N Serotonin receptor, 5HT1F N Serotonin receptor, 5HT2A Serotonin receptor, 5HT2B N
RIGUI G Serotonin receptor, 5HT1A HTR1A N Serotonin receptor, 5HT1B HTR1B N Serotonin receptor, 5HT1C HTR1C N Serotonin receptor, 5HT1D HTR1D N Serotonin receptor, 5HT1E HTR1E N Serotonin receptor, 5HT1F HTR1F N Serotonin receptor, 5HT1F HTR1F N Serotonin receptor, 5HT2A HTR2A N Serotonin receptor, 5HT2B HTR2B N
Serotonin receptor, 5HT1A HTR1A N Serotonin receptor, 5HT1B HTR1B N Serotonin receptor, 5HT1C HTR1C N Serotonin receptor, 5HT1D HTR1D N Serotonin receptor, 5HT1E HTR1E N Serotonin receptor, 5HT1F HTR1F N Serotonin receptor, 5HT2A HTR2A N Serotonin receptor, 5HT2B HTR2B N
Serotonin receptor, 5HT1B Serotonin receptor, 5HT1C Serotonin receptor, 5HT1D Serotonin receptor, 5HT1D HTR1D N Serotonin receptor, 5HT1E Serotonin receptor, 5HT1F Serotonin receptor, 5HT2A Serotonin receptor, 5HT2A HTR2A N Serotonin receptor, 5HT2B
Serotonin receptor, 5HT1C N Serotonin receptor, 5HT1D HTR1D N Serotonin receptor, 5HT1E HTR1E N Serotonin receptor, 5HT1F HTR1F N Serotonin receptor, 5HT2A HTR2A N Serotonin receptor, 5HT2B HTR2B N
Serotonin receptor, 5HT1D HTR1D N Serotonin receptor, 5HT1E HTR1E N Serotonin receptor, 5HT1F HTR1F N Serotonin receptor, 5HT2A HTR2A N Serotonin receptor, 5HT2B HTR2B N
Serotonin receptor, 5HT1E HTR1E N Serotonin receptor, 5HT1F HTR1F N Serotonin receptor, 5HT2A HTR2A N Serotonin receptor, 5HT2B HTR2B N
Serotonin receptor, 5HT1F HTR1F N Serotonin receptor, 5HT2A HTR2A N Serotonin receptor, 5HT2B HTR2B N
Serotonin receptor, 5HT2A HTR2A N Serotonin receptor, 5HT2B HTR2B N
Serotonin receptor, 5HT2B HTR2B N
Serotonin receptor, 5HT2C HTR2C N
Serotonin receptor, 5HT3 HTR3 N
Serotonin receptor, 5HT4 HTR4 N
Serotonin receptor, 5HT5 HTR5 N
Serotonin receptor, 5HT6 HTR6 N
Serotonin receptor, 5HT7 HTR7 N

Sodium channel, voltage gated, type V, alpha polypeptide	SCN5A	N
Sodium channel, voltage-gated, type 1, beta	SCN1B	N
polypeptide Solute carrier family 6 (GAMMA- AMINOBUTYRIC ACID transporter), member 1	SLC6A1	Т
Solute carrier family 6 (neurotransmitter transporter, dopamine), member 3	SLC6A3	Т
Solute carrier family 6 (neurotransmitter transporter, noradrenaline), member 2	SLC6A2	Τ
Sperm protamine P1	PRM1	G
Sperm protamine P2	PRM2	Ğ
T-BOX 3	TBX3	G
Testis-specific protein Y	TSPY	G
Tyrosine hydroxylase	TH	E
UDP-glucuronosyltransferase 1	ugt1d, UGT1	Ε
UDP-glucuronosyltransferase 2	UGT2	E
Vasoactive intestinal polypeptide	VIP	Ν
Vasoactive intestinal polypeptide receptor	VIPR	Ν
Zona pellucida glycoprotein 1	ZP1	G
Zona pellucida glycoprotein 2	ZP2	G
Zona pellucida glycoprotein 3	ZP3	G
Zona pellucida receptor tyrosine kinase	ZRK	G
Zonadhesin	ZAN	G

- 526.A set of probes, said probes being antibodies or antibody fragments which interact with specific expressed proteins encoded by gene sequences of a group of genes, said probes being for detecting relevant variants (mutations and polymorphisms), e.g. nucleotide substitutions (missense, nonsense, splicing and regulatory), small deletions, small insertions, small insertion deletions, gross insertions, gross deletions, duplications, complex rearrangements and repeat variations in a target group of genes; characterised in that said group is a core group of genes consisting of substantially all of the genes defined in claim 525.
- 527.A set according to claim 525 or 526 in which a minority of said probes for listed genes are absent.
- 528.A set according to claim 525 or 526 in which a limited number of additional probes are present together with substantially all of the probes for the listed genes.
- 529.A set according to claim 525 or 526 in which a limited number of probes are replaced by probes for non-listed genes.
- 530.A set of probes for a core group of genes according to any of claims 525 to 529 in which each gene to be probed is substantially similar (greater than 85% homologous) in sequence to the respective member of the core list of genes.

- 531.A set according to any of claims 525 to 530 consisting of probes for members of a sub-group of the core group.
- 532.A set according to any preceding claim in which said probes are in the form of an array and are spatially arranged at known locations on a substrate.
- 533. A set according to any preceding claim wherein said probes are on a substrate which forms part of or consists of one or more chip plate(s), for use in a chip assay for detection of said gene variants.
- 534.A set according to any preceding claim in which said probes are mass, electrostatic or fluorescence tagged probes.
- 535.A set according to claim 532 or 533 in which said substrate is a semiconductor microchip.
- 536.A set according to any preceding claim for use in a biological assay for detection of said gene variants.
- 537. A set according to any preceding claim for use in the measurement of differential gene expression levels.
- 538. A medical device including a set according to any preceding claim for use in an assay for detection of said gene variants.
- 539.A medical device including a set according to any of claims 525 to 537 for use in an array for detection of differential gene expression levels.
- 540. A method for use in assessing the genomic profile of a patient or individual, the method comprising testing for and detecting the presence or absence of DNA or RNA encoding the relevant structural variants (as defined in claim 525) in a target group of genes by hybridising a nucleic acid-containing sample from said patient or individual to a set according to any of claims 525 and 527 to 537and relating the probe hybridisation pattern to said variations.
- 541. A method for use in assessing the the genomic profile of a patient or individual, the method comprising testing for and detecting the presence or absence of DNA or RNA encoding the relevant structural variants (as defined in claim 526) in a target group of genes by interacting an expressed-protein-containing sample from said patient or individual with a set of probes according to any of claims 526 to 537 and relating the probe interaction pattern to said variations.
- 542. Use of a set or device according to any of claims 525 to 537 for the prognosis and management of patients suffering from or at risk of developing sexual dysfunction.
- 543. Use of a set or device according to any of claims 525 to 537 for predicting likely therapeutic response and adverse events following therapeutic intervention.
- 544. Use of a set or device according to any of claims 525 to 537 for predicting likely therapeutic response and adverse events following the intake of a specific drug.
- 545. Use of a set or device according to any of claims 525 to 537 for predicting likely patterns of symptom clusters (symptom profiles) in disease and the likelihood of subsequent, contingent, disease or symptoms.
- 546. Use of a set or device according to any of claims 525 to 537 for general health screening, occupational health purposes, healthcare planning on a population basis and other healthcare management utilisations.
- 547. Use of a set or device according to any of claims 525 to 537 for the development of new strategies of therapeutic intervention and in clinical trials.
- 548. Use of a set or device according to any of claims 525 to 537 for construction

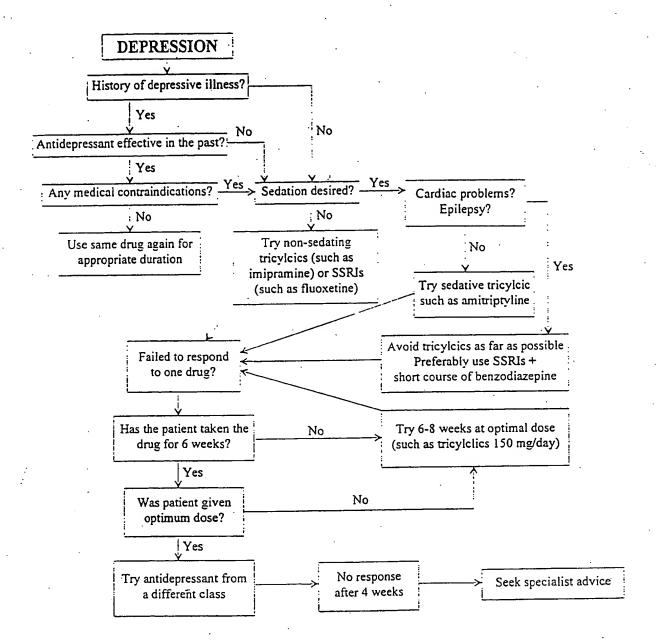
- of and generation of algorithms for patient and healthcare management.
- 549. Use of a set or device according to any of claims 525 to 537 for modelling or assessing the impact of diseases or healthcare management strategies on individuals, groups, patient cohorts or populations
- 550. Use of a set or device according to any of claims 525 to 537 for modelling, assessing or exploring the theoretical impact of diseases and healthcare management strategies on individuals, groups, patient cohorts or populations.
- 551. Use of a set or device according to any of claims 525 to 537 for predicting optimum configuration/management of thereapeutic intervention.
- 552.A method according to claim 540 or 541 in which the identification of gene variants is indicative of a higher risk of developing sexual dysfunction for the patient or individual.
- 553. A method for generating a model to assess whether a patient or individual or population or group is or are likely to develop sexual dysfunction which method comprises:
- i) obtaining DNA or RNA or protein samples from patients or individuals diagnosed as suffering from sexual dysfunction;
- ii) obtaining DNA or RNA or protein samples from a control group of subjects diagnosed as not suffering from the sexual dysfunction;
- iii) analysing the samples obtained in i) and ii) to identify the polymorphic variations encoded in the core group of genes as defined in any of claims 525 to 531;
- iv) calculating the frequencies of these alleles in the samples from i) and ii);
- v) comparing the frequencies of these alleles in i) and ii);
- vi) performing a statistical analysis on the results from v) in order to generate a model for assessing the risk of developing sexual dysfunction.
- 554. A method for assessing whether a given subject will be at risk of developing symptoms, which comprises comparing said subject's genotype with a model generated by the method of claim 553.
- 555. A method according to any of claims 540, 541, 553 and 554 wherein at least one step is computer-controlled.
- 556. An assay suitable for use in a method according to any of claims 540, 541, 553 and 554; said assay comprising means for determining the presence or absence of relevant polymorphic variants of the core group of genes as defined in any of claims 525 to 531 in a biological sample.
- 557. A formatted assay technique (kit) for use in assessing the risk of a patient or individual developing sexual dysfunction; said kit comprising:
 - i) means for testing for the presence or absence or DNA or RNA encoding relevant polymorphic variants of the core group of genes as defined in claim 525 or 527 to 531 in a sample of human DNA;
 - ii) reagents for use in the detection process
 - iii) readout indicating the probability of a patient or individual developing sexual dysfunction.
- 558. A formatted assay technique (kit) for use in assessing the risk of a patient or individual developing sexual dysfunction; said kit comprising:
 - i) means for testing for the presence or absence of proteins encoded by the core group of genes and/or relevant polymorphic variants of the core

- group of genes as defined in any of claims 526 to 531 in an expressed-protein-containing human sample;
- ii) reagents for use in the detection process
- iii) readout indicating the probability of a patient or individual developing sexual dysfunction.
- 559. A set of probes according to claim 525, wherein the probes are selected from the group consisting of oligonucleotides and polynucleotides.

SCHIZOPHRENIA

Standard oral neuroleptic Nonadherence is common. (eg chlorpromazine or haloperidol) Continue with oral therapy or Effective especially if patients do not at standsrd doses change to depot to assure collaborate in their choice Tolerated adherence to therapy of treatment Asses over at least 4 weeks Ineffective | Not tolerated Change to different class of oral Assess efficiency and tolerance with recognised neuroleptic at standard doses rating scales, eg BPRS, PANSS, Try 'atypical' drug or sulpiride if Continue with oral therapy or ESRS, LUNSERS Effective first drug poorly tolerated change to depot to assure Try 'atypical' if EPSE are severe or Tolerated adherence to therapy if negative symptoms predominate Assess over at least 4 weeks Avoid neuroleptic, polypharmacy Not tolerated Ineffective - oral + depot are rarely necessary Consider augmenting with lithium Consider early use of short term (if schizoaffective), benzodiazepines Continue to reviwe need clonazepam if sedation is required Effective (to sedate) or carbamazepine (for regularly. Long term therapy in acute psychosis agression or as a mood stabiliser) with benzodiazepines not Tolerated recommended Assess over at least 4 weeks Ineffective | Not tolerated Consider increasing dose of neuroleptic Few data to support the use of high-May exceed BNF limited if Royal If measured improvement, dose neuorleptics. Do not exceed Effective College guidelines followed document in notes and recommended dose for 'atypical' drugs TPR/ECG, etc (See BNF) continue, ?with depot. Tolerated Review frequently. Assess over at least 4 weeks, but no longer than 3 months Ineffective Not tolerated Change to clozapine Some support for the use of clozapine Effective plasma levels - aim for a pre-dose Give dose of 400 mg daily+ If measured improvement, level of 350 mcg per litre continue at reduced dose Tolerated Assess over at least 6 months Ineffective ' Not tolerated Perform complete drug history Review diagnosis Consider withdrawing all (ineffective) drugs and give most effective drug previously prescribed at lowest dose

DEPRESSION



while the airway responsiveness in our F₂ progeny (C57BL/6J x A/J) was unimodally and approximately normally distributed. Several factors may account for these differences, including methods of assessment of airway reactivity, differences in mouse age³⁵, the susceptibility of acetylcholine to cleavage, housing conditions and viral antigen free (VAF) status. We minimized these factors by studying only male mice of fixed age housed under barrier conditions, and provoked airway responses with an acetylcholine congener not subject to cleavage by acetylcholinesterase.

In humans, it has been postulated that asthma can be inherited as a mendelian dominant6 (with variable penetrance) or polygenic36 trait. Longo et al. examined the airway responsiveness to carbachol in healthy parents of asthmatic children. The presence of a bimodal distribution in airway responsiveness in the parent population and the observation that 85% of the couples who had an asthmatic child had at least one or two parents with normal airway responsiveness suggested that bronchial reactivity was inherited as an autosomal dominant trait with incomplete penetrance. Although the possibility of ascertainment bias exists, the presence of a bimodal distribution of bronchial responsiveness in nonasthmatic parents of asthmatics suggests a single genetic locus. Our results are similar in that about half of the observed variance in airway responsiveness could be attributed to environmental factors. Townley et al.36 demonstrated a unimodal distribution of airway responsiveness in normal subjects from control, nonasthmatic, non-allergic families and confirmed a bimodal distribution of MCh responses in families with and without asthma. The heterogeneity of bronchial responses were significantly affected by both the age and sex of subjects36. Their conclusion was that the bronchial response to MCh is not due to segregation at a single locus.

Given that airway responsiveness to MCh did not segregate as a single locus, we used the approach of Sewell Wright³⁷ to estimate the segregation index or number of loci responsible for regulating airway responsiveness. This approach makes the assumption that all loci make equal contributions to the expression of the phenotypes in question. Estimation of the number of loci responsible for the phenotypic effect of interest was calculated according to these principles37. This analysis suggests the involvement of two loci to regulate airway hyperresponsiveness in the mouse. Since we have already identified 3 loci and yet 74% of the genetic variance remains unaccounted for, it seems likely that the simple assumptions made by Wright (such as equal and additive phenotypic effects of the loci) do not apply, and that loci interact in a more complicated manner to cause airway hyperresponsiveness. Indeed, we found evidence of epistatic interaction among the three loci.

Given the biological significance of the candidate genes linked to *Bhr1*, *Bhr2* and *Bhr3* to asthma, one can now evaluate the importance of these specific genes in asthma or asthma models. This approach could consist of determining if there exist differences in sequence or expression of candidate genes in "asthma" and "nonasthma-like" murine strains. Construction of congenic animals by the directed backcross of (C57BL/6J x A/J) F₁ progeny onto a C57BL/6J background may also be useful for evaluating the relative importance of the various candidate genes to the asthma-like phenotype.

Methods

Animals. Male, viral-antigen-free (VAF) C57BL/6J, (n=40), A/J, (n=42), (C57BL/6J x A/J) F₁ hybrids, (n=40), (A/J x C57BL/6J) F₁ hybrids, (n=40), (C57BL/6J x A/J) F₂ intercross mice, (n=40), 19 strains of AXB and BXA recombinant inbred mice, (n=155) and [(C57BL/6J x A/J) x C57BL/6J)] backcross mice (n=321) 5-6 weeks of age were purchased from Jackson Laboratory, Bar Harbor, Maine. To minimize environmental effects, VAF mice were housed in isolation cages under VAF conditions. The mice were acclimatized for 10-14 days and allowed free access to commercial pelleted mouse feed and water, which were autoclaved to ensure sterility. In addition, blood from sentinel animals was routinely tested to ensure their VAF status. Animals were studied at eight weeks of age.

Phenotype analysis. Each mouse was anaesthetized with an intraperitoneal injection of pentobarbital sodium (70-80 mg kg⁻¹), (Anthony Products Company, Arcadia, CA). When an acceptable stage of surgical anaesthesia was reached, the metal portion of a 19gauge tubing adapter was inserted into the trachea and secured in place. An internal jugular vein was cannulated with a saline-filled Silastic catheter (0.06 cm OD, 6-8 cm in length, <0.005 ml vol) attached to a 0.1-ml Hamilton microsyringe (Hamilton Company, Reno, Nevada) and used to administer methacholine (MCh; Acetylß -methylcholine chloride, Sigma). A thoracotomy was performed so that pleural pressure would equal body surface pressure. The tracheostomy tube was passed through a hole in the plethysmograph chamber and connected via three ports of a four-way connector to a rodent ventilator (Harvard Apparatus, Division of Ealing Scientific, Natick, MA). The ventilator was set to provide 150 breaths/min with tidal volumes of 5-6 µl g-1 and a positive endexpiratory pressure of 3-4 cm H₂0. These settings provide eucapnic ventilation in mice over the weight range studied 36. Mice were placed in a sealed constant mass plethysmograph consisting of a 1-I bottle insulated from the ambient environment by 1/2-inch foam padding and containing copper mesh to maintain isothermal conditions. The pressure difference between the plethysmograph chamber and the reference chamber was detected with a transducer (Celesco model LCVR 0-2 cm H2O, Canoga Park, CA). Changes in lung volume were determined from measured changes in plethysmograph pressure. An electrical signal proportional to flow was obtained by electrical differentiation of the volume signal. The delay between the volume and flow signals was < 0.5 ms. Transpulmonary pressure was measured as the pressure difference between the pressure at the airway opening, measured from the 4th port of the 4-way connector, and the pressure in the plethy smograph itself. The plethysmograph system has been shown to be without significant amplitude distortion or phase shift up to 30 Hz.

Pulmonary resistance (R1) was determined with the use of signals derived from transpulmonary pressure and lung volume39. Dose-response curves to methacholine were obtained by administering sequentially increasing doses of MCh (33 $\mu g \, kg^{\text{--}1}$ to $3300\,\mu g\,k g^{-1})$ in a 20- to 35- μl volume. The volume of fluid injected with each dose produced no measurable physiological effects. The peak response to each dose was obtained by making 6 serial measurements within the first minute following injection of MCh. Each measurement was calculated via a cross-correlation technique³⁵ from a number of breaths recorded during the measurement interval. Because the pulmonary response to MCh peaks later and dissipates more slowly with increasing doses, the interval for each of the measurements was increased from 4 s (10 breaths) to 10 s (25 breaths) as the MCh dose was increased. Furthermore, enough time was allowed to elapse between MCh doses such that pre-dose measurements of R_1 returned to within 10% of the value obtained before the preceding dose of MCh. A large breath (three times tidal volume) was administered to standardize volume history prior to each dose of MCh. Pulmonary responses were recorded on a dedicated microcomputer. Each animal's dose-response curve was log-transformed and then subjected to regression analysis to calculate the dose required for a two fold increase in R_1 (ED₂₀₀ R_1). The transformation of the phenotype data to a log scale is necessary to normalize the distributions in order to construct genetic maps via the MAPMAKER-QTL computer package40.

DNA preparation. A midline abdominal incision was performed and the animal killed by exsanguination under surgical anesthesia. Both kidneys were carefully removed, snap frozen in liquid nitrogen

and subsequently stored in a -80 °F freezer. Purified genomic DNA was obtained from one of the kidneys using a DNA extraction kit (Stratagene). Upon completion of the protocol, spectrophotometric readings were taken to verify the purity of the samples (A260/A280) and quantitate (A260 nm) the DNA concentration.

Genotype analysis. To genotype backcross progeny for SSLPs, PCR reactions were performed with one radioactively labelled primer and one unlabelled primer and the products were visualized upon autoradiography of polyacrylamide gels. Primers were end-labelled with [y-32P] ATP (Easytides, DuPont) according to standard protocols". A 20 ng aliquot of genomic DNA was amplified in a 10 µl PCR reaction using AmpliTaq DNA polymerase (Perkin-Elmer Cetus) according to manufacturer's specifications. The primer concentrations were 75 nM end-labelled forward primer, and 75 nM unlabelled reverse primer. The reactions were overlaid with 40 µl of light mineral oil (Sigma). Reactions were amplified on a TC1600 thermal cycler (Intelligent Automation Systems, Cambridge, MA) using the following protocol: 30 cycles of 92 ℃ for 30 s, 55 ℃ for 30 s, and 72 ℃ for 30 s. Gels and autoradiography were as previously described⁴². In total, we used 157 SSR markers that covered the genome at an average spacing of 9 cM (available upon request).

Linkage analysis and QTL mapping. The genetic map was constructed by using the MAPMAKER computer package, as described⁴⁰. QTL analysis was performed on the log-transformed phenotype using the MAPMAKER-QTL computer package as described⁴³.

Statistical analysis. Computations were performed with the

Statview® 4.0 (Abacus Concepts, Berkeley, CA, USA) and JMP® 3.0 (SAS Institute Inc., Cary, NC, USA) statistical packages. A Kruskal-Wallis one-way ANOVA by ranks and a Wald-Wolfowitz unpaired t-test were used for the comparison of the pre-infusion baseline and log ED₂₀₀R_L results in the different parental strains and crosses. A Mann-Whitney U test was used to compare mean dose-response curves for R_L between AJ and C57BL/6J mice. Where appropriate, a Shapiro-Wilk W test was used to assess normality. Standard analysis-of-variance (ANOVA), including cross-terms for two-way and three-way interactions, were used to evaluate possible interactions between candidate QTL loci (Bhr1, Bhr2, and Bhr3) and mouse airway responsiveness phenotype. Results are expressed as means± standard deviation, unless otherwise stated, were considered statistically significant at the P<0.05 level.

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